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WIND TUNNEL TEST ON A 1/4.622 FROUDE SCALE, HINGELESS ROTOR, TILT ROTOR MODEL

VOLUME II

J. P. Magee
H. R. Alexander

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by

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A DIVISION OF THE BOEING COMPANY
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ABSTRACT

This document is Volume II of four volumes of experimental data obtained on a wind tunnel test of a 1/4.62 Froude scale hingeless rotor tilt rotor model. The test generated parametric data from hover, through transition and out to 300 knots full scale speed in cruise, and was performed under NASA Contract NAS2-9015.

This volume contains transition data files.

This report was prepared by the Boeing Vertol Company of Philadelphia, Pennsylvania for the National Aeronautics and Space Administration, Ames Research Center under NASA Contract NAS2-9015.

Mr. M. A. Shovlin and Mr. T. Galloway of Ames Research Center were technical monitors for this work.

The Boeing Program Manager was Mr. J. P. Magee. The contributions of the Boeing Vertol Wind Tunnel staff are acknowledged.

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LIST OF SYMBOLS

SYMBOL	NOMENCLATURE	UNITS
A_1	Lateral cyclic pitch	Deg
B_1	Longitudinal cyclic pitch	Deg
b	Span	Ft
CTB-L	Left Rotor Thrust Coefficient	$\frac{T_L}{\rho \pi R^2 V_T^2}$
CPB-L	Left Rotor Power Coefficient	$\frac{HP_L \times 550}{\rho \pi R^2 V_T^3}$
CNFB-L	Left Rotor Normal Force Coefficient	$\frac{NF_L}{\rho \pi R^2 V_T^2}$
CSFB-L	Left Rotor Side Force Coefficient	$\frac{SF_L}{\rho \pi R^2 V_T^2}$
CPMB-L	Left Rotor Pitching Moment	$\frac{PM_L}{\rho \pi R^3 V_T^2}$
CYMB-L	Left Rotor Yawing Moment	$\frac{YM_L}{\rho \pi R^3 V_T^2}$
CTB-R	Right Rotor Thrust Coefficient	$\frac{T_R}{\rho \pi R^2 V_T^2}$
CPB-R	Right Rotor Power Coefficient	$\frac{HP_L \times 550}{\rho \pi R^2 V_T^3}$
CNFB-R	Right Rotor Normal Force Coefficient	$\frac{NF_R}{\rho \pi R^2 V_T^2}$
CSFB-R	Right Rotor Side Force Coefficient	$\frac{SF_R}{\rho \pi R^2 V_T^2}$
CPMB-R	Right Rotor Pitching Moment	$\frac{PM_R}{\rho \pi R^3 V_T^2}$

LIST OF SYMBOLS (continued)

SYMBOL	NOMENCLATURE	UNITS
CYMB-R	Right Rotor Yawing Moment	$\frac{YM_R}{\rho\pi R^3 V_T^2}$
CLW-AC	Aircraft Lift Coefficient	$\frac{\text{Lift}}{1/2\rho V^2 S}$
CSFW-AC	Aircraft Side Force Coefficient	$\frac{SF}{1/2\rho V^2 S}$
CAFN-AC	Aircraft Axial Force Coefficient	$\frac{\text{Axial Force}}{1/2\rho V^2 S}$
CPMW-AC	Aircraft Pitching Moment	$\frac{\text{Pitch Moment}}{1/2\rho V^2 S\bar{c}}$
CYMW-AC	Aircraft Yawing Moment	$\frac{\text{Yaw Moment}}{1/2\rho V^2 Sb}$
CRMW-AC	Aircraft Rolling Moment	$\frac{\text{Roll Moment}}{1/2\rho V^2 Sb}$
$\bar{c}$	Wing Chord	FT
D	Diameter	-
D'	Airframe Drag	LB
EI_{FLAP}	Flapwise Bending Stiffness	-
EI_{CHORD}	Chordwise Bending Stiffness	-
FM	Figure of Merit	-
GJ	Torsional Stiffness	-
GW	Gross Weight	LB
HP	Rotor Horsepower	HP
I_{xx}, I_{yy}, I_{zz}	Mass Moment of Inertia about the Three Axes	IN-LB SEC^2
I_N	Nacelle Incidence	Deg
I_p	Acceleration Pitch Inertia	-
H_Z	Hertz	-

LIST OF SYMBOLS (continued)

SYMBOLS	NOMENCLATURE	UNITS
I^*_p	Centrifugal Pitch Inertia	-
I_{PIVOT}	Moment of Inertia - Polar	LB-FT
i_w	Wing Incidence	Deg
L	Lift	LB
NA	Neutral Axis	-
p	Per Rotor Revolution	-
PM	Pitching Moment	FT LB
q	Freestream Dynamic Pressure $1/2\rho V^2$	LB/FT^2
R	Rotor Radius	FT
r	Radial Location to a Blade Station	FT
RM	Rolling Moment	FT LB
S	Wing Area	FT^2
SF	Side Force	LB
T	Rotor Thrust	LB
t	Airfoil Thickness	FT
V	Freestream Velocity	FT/SEC
V_T	Rotor Tip Speed	FT/SEC
X	Aircraft Propulsive Force	LB
X/R or r/R	Non-Dimensional Radius	-
YM	Yawing Moment	FT LB
α	Angle of Attack	-
α_f	Fuselage Pitch Deflection	Deg
α_s	Nacelle Shaft Pitch Deflection	Deg

LIST OF SYMBOLS (continued)

SYMBOLS	NOMENCLATURE	UNITS
β	Side Slip Angle	Deg
δ_A	Aileron Deflection	Deg
δ_F	Flap Deflection	Deg
∂	Partial Derivative Operator	-
Δ	Increment In Coefficient	-
$\Delta\theta$	Incremental Blade Pitch	-
ρ	Density of Air	LB SEC^2/FT^4
σ	Rotor Solidity $\frac{bcR}{\pi R^2}$	-
ψ	Rotor Azimuth Angle	Deg
θ_{75}	Rotor Blade Collective Pitch at the Three Quarter Radius	Deg
μ	Advance Ratio V/V_T	-
ω_α	Wing Torsional Frequency	cps
ω_β	2nd Mode Bending Blade Frequency	-
ω_c	Wing Chordwise Bending Frequency	cps
ω_L	1st Mode Bending Blade Frequency	-
ω_p	Aircraft Pitch Frequency	cps
ω_v	Wing Vertical Bending Frequency	cps
Ω	Rotor Angular Velocity	-
$1\Omega, 2\Omega$	Integer Frequency Ratio	-
$\Omega-\omega\ell$	Lower Blade Lag Rotational Frequency	cps
$\Omega+\omega\beta$	Upper Blade Flap Rotational Frequency	cps
$\Omega-\omega\beta$	Lower Blade Flap Rotational Frequency	cps

LIST OF SYMBOLS (continued)

SYMBOLS	NOMENCLATURE	UNITS
ζ_V	Wing Vertical Bending Damping % Critical	-
ζ_C	Wing Chord Bending Damping % Critical	-
ζ_α	Wing Torsion Damping % Critical	-

1.0 INTRODUCTION

This document contains wind tunnel test data obtained on a 1/4.622 scale dynamically similar model of a tilt rotor aircraft which has composite hingeless blades. The test was performed under NASA contract NAS2-9015.

The objective of the test was to generate information on the behavior of rotor and airframe effects over a range of flight parameters representing the complete operating envelope of the tilt rotor vehicle. The information which was required included the magnitude and sensitivity of:

(1) Rotor forces and moments

(2) Blade loads and pitch link loads

(3) Wing rotor interference effects

(4) Airframe forces and moment

for values of such flight parameters as:

(1) Nacelle tilt angle

(2) Forward speed

(3) Aircraft attitude in pitch and yaw

(4) Collective and cyclic pitch control

(5) Wing flap deflection

The selection of test points and true variations for parameters was made in such a way that a comprehensive set of data was obtained for all potential flight conditions through hover, a wide envelope of transitions, and cruise at speeds up to 300 knots.

The purpose of this acquisition of comprehensive rotor and airframe test data is to provide the knowledge and basis for understanding rotor and airframe behavior which is an essential prerequisite to the development of an efficient system of integrated rotor and aircraft controls.

A secondary objective of the test was to determine the feasibility of a control system which minimizes blade loads in cruise. The characteristic feature of this system is the use of cyclic pitch geared by a simple mechanical linkage to the motion of the stick and control surfaces. These must be properly phased and scheduled to achieve good flying qualities in all flight regimes, subject to the overall design requirement of an optimal control system to maintain simplicity and reliability as far as is consistent with the loads, maneuver envelope and flying qualities of the aircraft.

The rotor controls provide a major portion of the control capability from hover through the low transition speed range, although the conventional control surfaces are operative in all regimes of flight including hover. As speed is increased, and the aerodynamic surfaces become effective for trim and control, the rotor controls can be directed at minimizing rotor loads. In cruise the problem reduces to determining the rotor control required to maintain minimum loads. Prior to this test, a limited amount of full scale experimental data existed for transition, and for cruise up to speeds of 192

knots. This test program extends the range of this data in the transition regime, and in cruise flight the range was extended up to the simulated speed of 300 knots.

The data obtained on this test goes a long way toward providing the information which is necessary to tackle the job of designing an optimized and integrated control system for a tilt rotor aircraft using a soft inplane hingeless rotor. Work which remains to be done involves reducing the data obtained in the test, to an analytical format with forces, moments, loads, etc., expressed as functions of the relevant flight parameters. This is necessary for two reasons:

(1) to provide an understanding of the significance and relative importance of the parameters which will permit efficient planning of future full scale tests

(2) to provide a set of simple functions representing the body of test data, from which the rotor effects may be calculated within the context of a real time simulation

This reduction of the test data to analytical functions of the parameters is beyond the scope of the current contract. It is planned that this additional step will be accomplished in the near future under separate funding.

The data obtained during this test is presented in four volumes.

Volume I contains a detailed description of the model, the test installation, test procedures and data reduction: for the convenience of the user, an abbreviated discussion of these is included in Volumes II, III and IV. It was felt that the amount of data generated was too voluminous to be readily presented in a single volume, and Volumes II, III and IV present all the data in a logical sequence.

2.0 DESCRIPTION OF MODEL AND DATA FILE SYSTEM

This section of the report contains an abbreviated description of the model and also an explanation of the order in which the data are presented and identifies the values of test variables held constant in any given test run.

2.1 Model Description

The model tested is a 1/4.622 scale full span, powered configuration that is Froude scaled from the Model 222 Tilt Rotor Research aircraft. This model, shown in Figure 1 was provided by the contractor for this test program and has the following major dynamically-scaled components.

1. Two 3-bladed rotors
2. Two nacelles
3. Full span wing
4. Fuselage
5. Tail

Basic model dimensions are shown in Table 1. The rotors are defined in Figure 2 and have the same aerodynamic and aeroelastic characteristics as the full scale rotor built under NASA contract NAS2-6505. It has remote controlled collective pitch and two axes cyclic pitch actuation systems.

The nacelles are joined to the wing by a pivot and have remote pitch actuation.

TABLE 1

MODEL DIMENSIONS

ROTOR	
Number of Blades	3
Radius	33.75 IN. (85.72 cm)
Chord	4.078 IN. (10.35 cm)
Twist	42.5 DEG.
Airfoil Section	23021/23010-1.58
Solidity	0.115
Rotor Speed (Hover)	1185 RPM
Rotor Speed (Cruise)	825 RPM
Collective Pitch Available	-5 to 65 DEG.
Cyclic Pitch Available	± 10 DEG.
NACELLE	
Nacelle Pivot Position (in % of Wing Chord)	40%
Rotor Disc Nacelle Pivot Distance	12.33 IN. (31.31 cm)
WING	
Airfoil Section	63_4221 Modified
Span (Rotor ℄ to Rotor ℄)	86.76 IN. (220.37 cm)
chord	15.53 IN. (39.44 cm)
Area	9.36 FT.^{2} (.869 M^2)
Aspect Ratio	5.61
Flap in % of Chord	30%
Wing Incidence	2 DEG.
Tnickness - Chord Ratio	0.21
FUSELAGE	
Diameter	14.69 IN. (37.31 cm)
Length	102.50 IN. (260.35 cm)
TAIL - HORIZONTAL	
Area	2.73 FT.^{2} (.253 M^2)
Span	10.89 IN. (27.66 cm)
Aspect Ratio	4.25
Taper Ratio (C_{TIP}/C_{ROOT})	.384
Root Chord	14.05 IN. (35.68 cm)
Airfoil Section	64A010
Elevators in % of Chord	44.1%

TABLE 1 (continued)

TAIL - VERTICAL

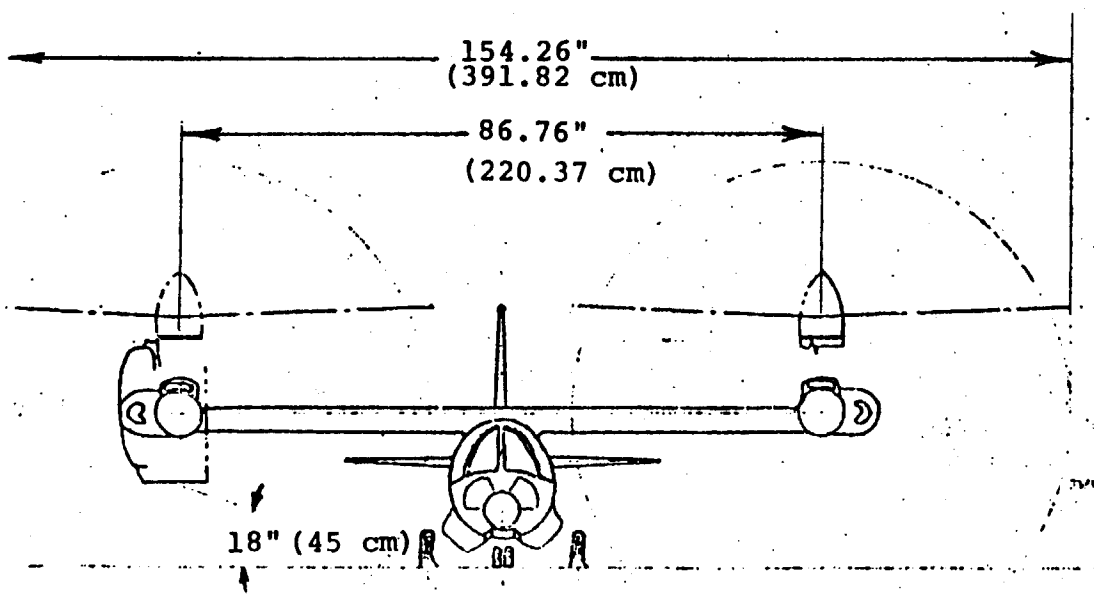
Area	2.03 FT^2	(.185 M^2)
Span	22.75 IN.	(57.78 cm)
Aspect Ratio	1.77	
Taper Ratio (C_{TIP}/C_{ROOT})	.35	
Root Chord	20.98 IN.	(58.29 cm)
Airfoil Section	64A008	
Rudder in % of Chord	50.6	

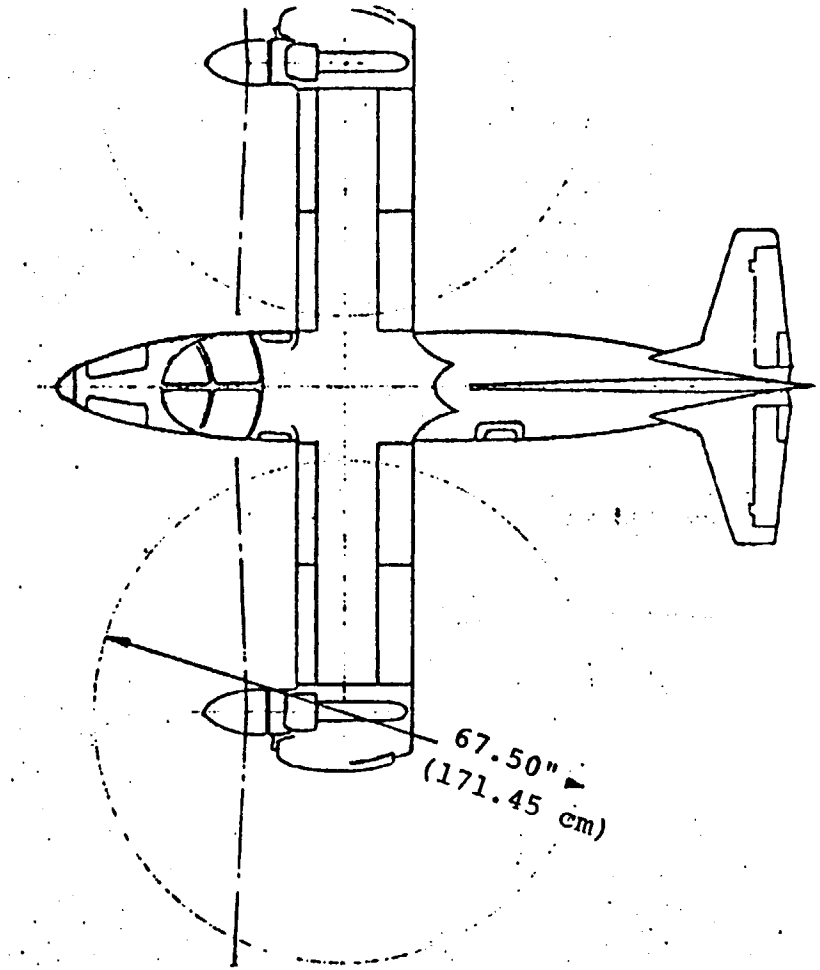
ROTOR

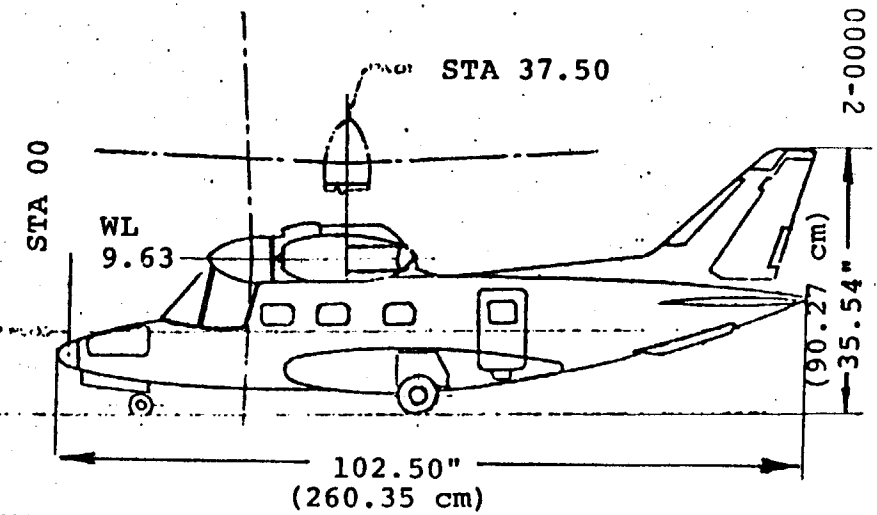
Diameter	67.50 In. (171.45 cm)
Solidity	.115
No. Blades	3

WEIGHTS

Design Gross Wt 122 Lbs (55.35 Kg)







D238-10000-2

FIGURE 1 1/4.622 FROUDE SCALE WIND TUNNEL MODEL.

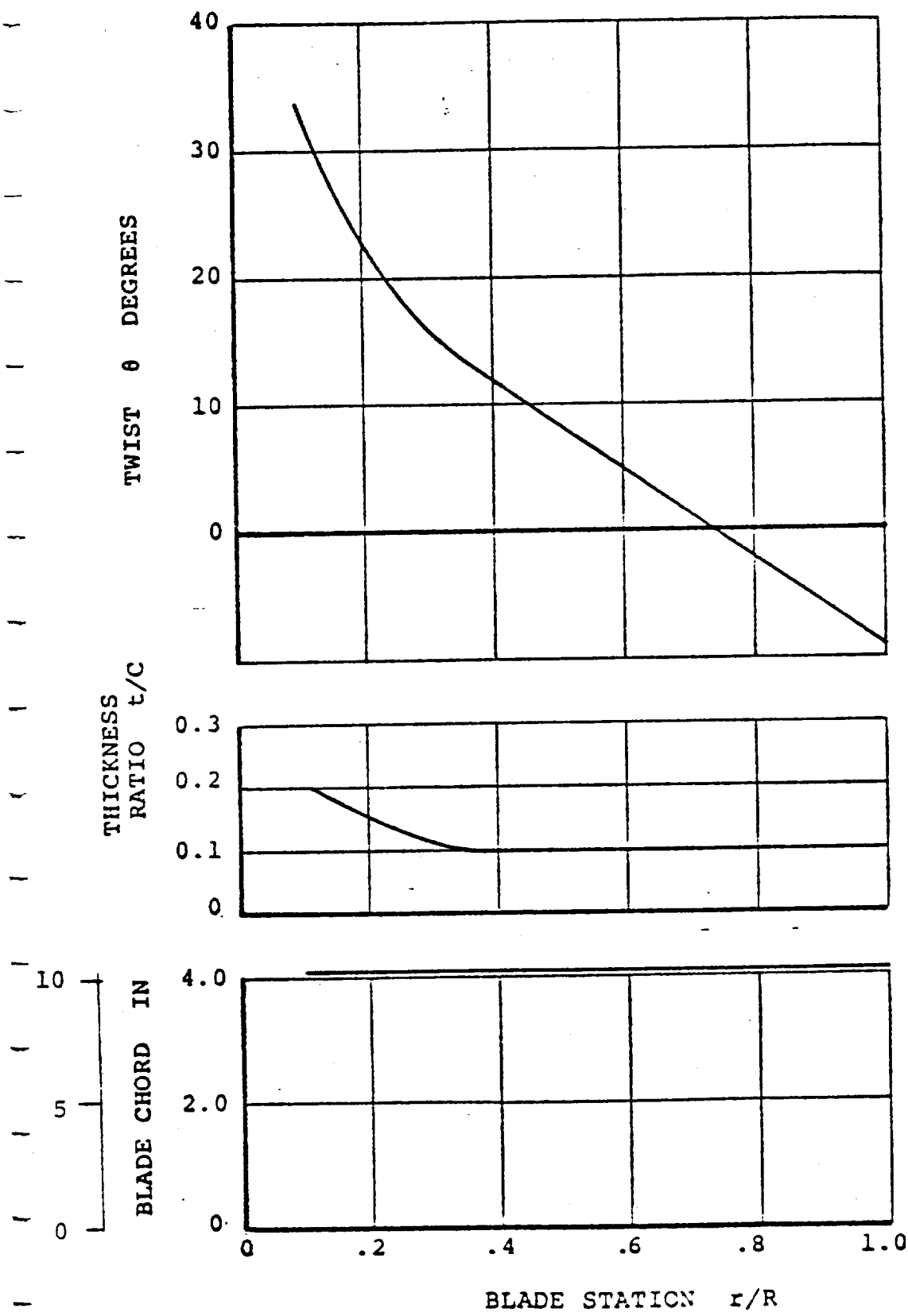


FIGURE 2. 1/4.622 FROUDE SCALE MODEL BLADE DEFINITION

The wing is crown mounted and has full span flaps and leading edge umbrellas for download alleviation. Flaps are used during transition to provide additional lift and the outboard section of the flap is used as an aileron for control in conjunction with outboard spoilers.

The wing, fuselage, and empennage are dynamically scaled from the Model 222 aircraft and the rudder and elevator are remotely controlled. The model was supported on a pedestal mount with pitch and yaw capability.

The primary instrumentation includes strain gages to obtain flap, chord and torsion loads at the blade root. A six component balance in each nacelle measures the rotor forces moments and torque. A six component main balance located in the fuselage measures aircraft forces and moments. Position indicators connected to meters provide a visual display of the aircraft control positions which were remotely controlled. Each rotor has an RPM and 1/rev output. Thermocouple readouts provided safety monitoring of critical motor, gearbox and cross shaft bearing temperatures.

The model is powered by a 20 HP, 11,375 RPM electric motor manufactured by Task Corporation. The motor drives a 3.04:1 reduction gear box in the center fuselage which is connected by cross shafts in the wing to a 3.09:1 reduction gear box in each nacelle. This provides a total gear reduction from the electric motor to rotor of 9.39:1.

Photographs of the model and detailed model data are provided in Volume I Reference .

Figure 3 shows the model mounting on the SRH teststand which provides pitch and yaw motion to the model. The dimensions associated with the balance centers (both main and nacelle balances) in relation to the hub center and aircraft CG reference location are shown in Figure 4.

The rotor cyclic controls are not located in the classical axis system. Figure 5 shows the location of the actuators in the azimuth and the blade location when the pitch arm is over the actuator. This defines the cyclic axis system used on test.

Sign conventions used for defining the measured forces and moments are depicted in Figure 6. The directions shown being positive forces and moments.

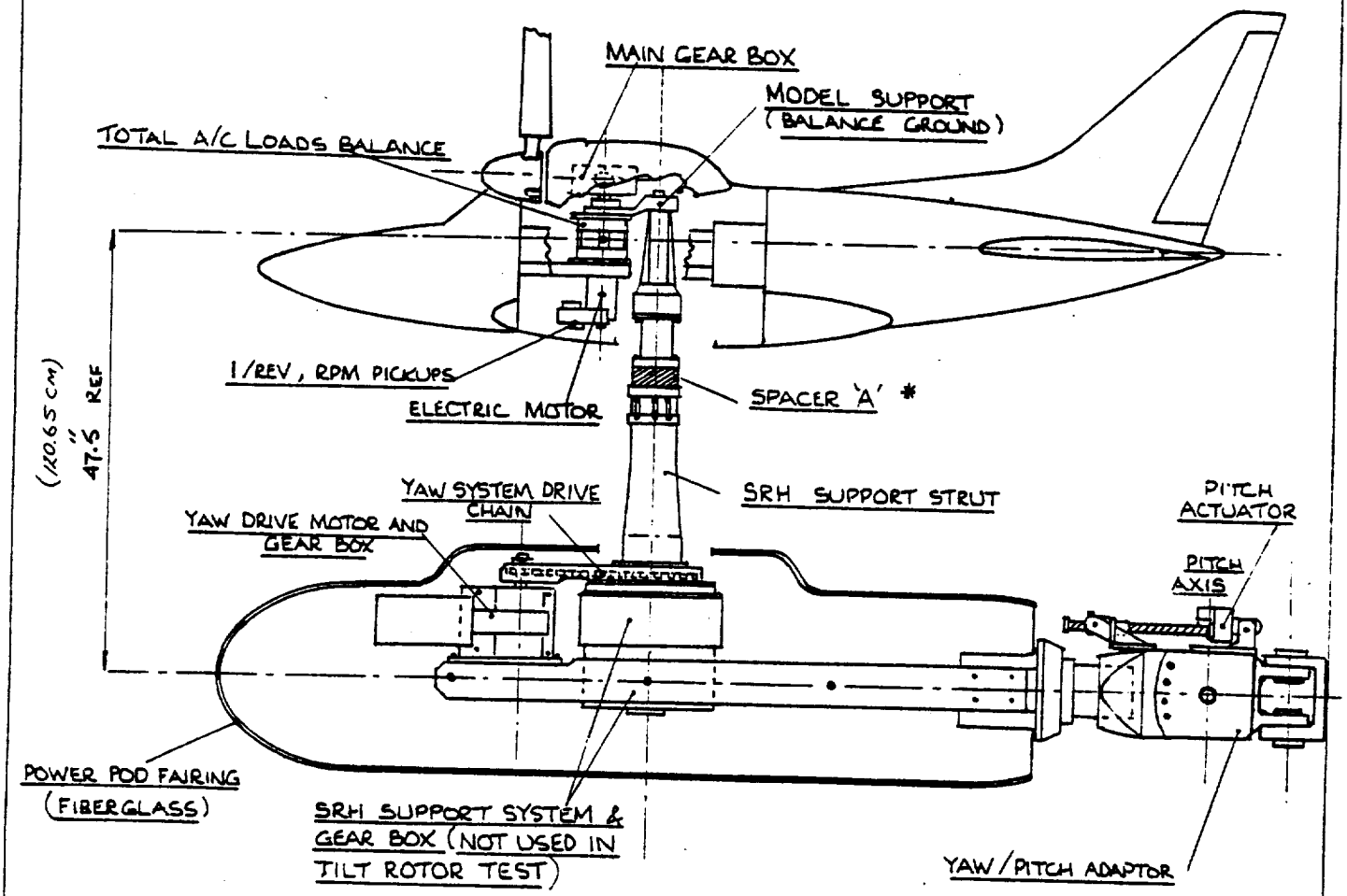
Positive pitch and yaw directions are in the same sense as positive pitch and yaw moments.

In order to provide a ready transformation of model data to full scale, a table of scale factors is given in Table 2.

2.2 Data File Index System

The procedure adopted on test is best explained by referring to Figure 7. This figure depicts the combinations of nacelle incidence I_N and airspeed (shown full scale) selected for

* FOR RUNS 1-26 SPACER 'A' WAS 20" LONG ('DUMMY' SRH BALANCE).
FOR RUNS 27-35 SPACER REPLACED BY SRH BALANCE (20" LONG).
FOR RUNS 36-166 SPACER 'A' FITTED AS DRAWN (2" LONG).



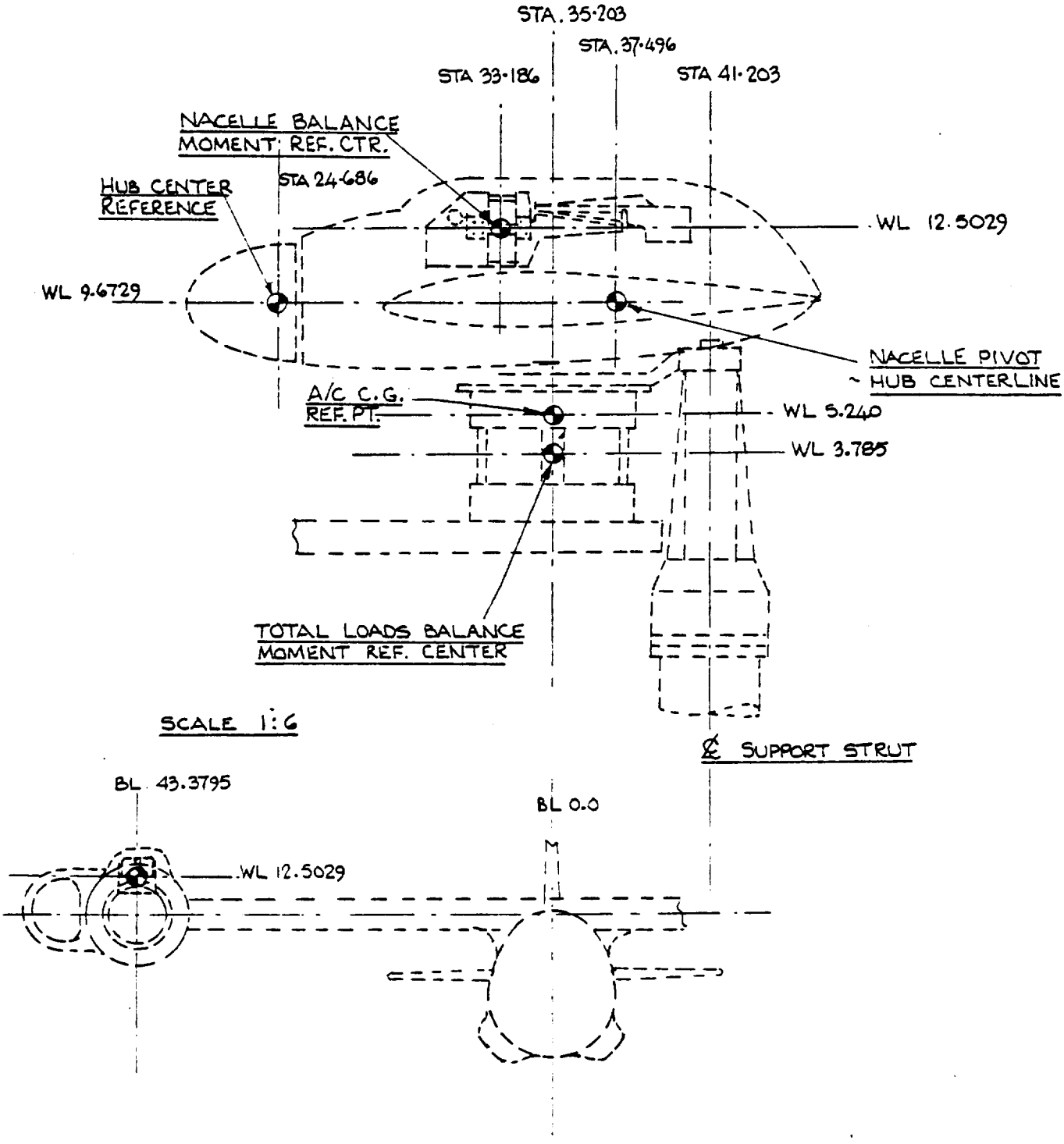
SCALE : 1/20

VR 095Q-1 ~ 1/4.622 SCALE TILT ROTOR MODEL

Figure 3. GENERAL ARRANGEMENT AND INSTALLATION ON SRH TEST STAND

Ker
6-1-76

FORM 46284 (2/66)



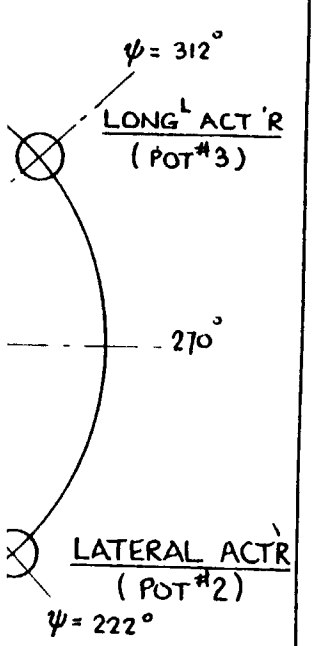
VR 095 Q-1 1/4.622 SCALE TILT ROTOR MODEL

Figure 4. RELATIVE BALANCE LOCATIONS & MODEL REFERENCES

KEF 6/2/36
FORM 46284 (2 '66)

SCALE FACTORS

LINEAR DIMENSIONS	4.622
MASS OR WEIGHT	98.739
TIME	2.15
FREQUENCY	0.46514
VELOCITY	2.15
VISCOUS DAMPING	45.927
STIFFNESS	2109.36
SPRING RATE	21.363
MASS MOMENT OF INERTIA	2109.36
FORCE	98.739
STRAIN	1.0
MOMENT OR TORQUE	456.373
POWER	212:278
PER REV FREQUENCY	1.0
DISC LOADING	4.622
MACH NO.	2.1498
FROUDE NO.	1.0
LOCK NO.	1.0



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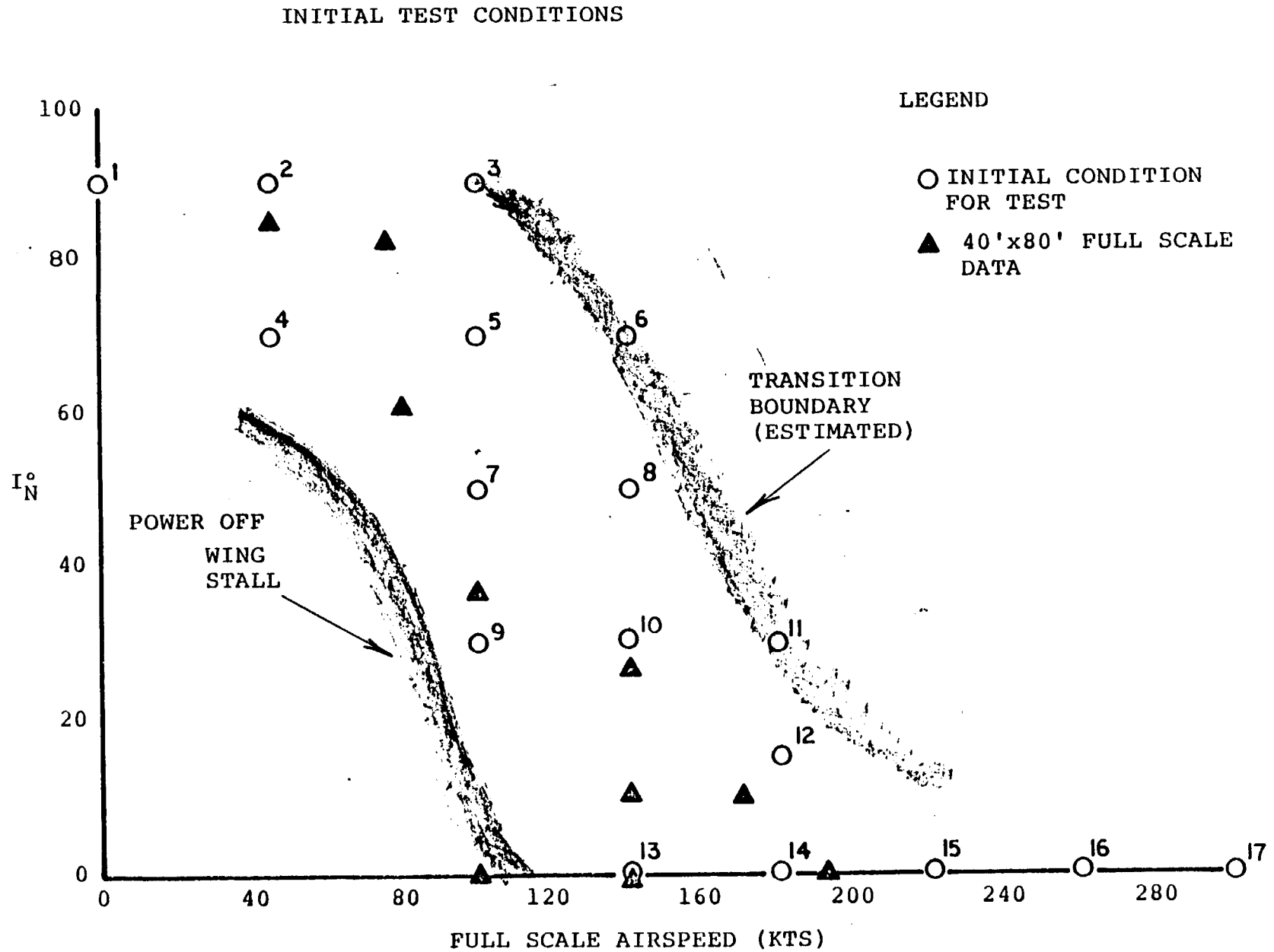


Figure 7. Scope of Test; Initial Test Conditions

initial test conditions. Seventeen initial test conditions are shown and numbered. Data obtained at conditions 1 through 4 is to be found in Volume I. This report contains data from conditions 5, 6, 7 and 8 which are I_N = 70° and 50° at full scale airspeeds of 100 and 140 knots.

The rest of the transition data (conditions 9, 10, 11 and 12) is to be found in Volume III and the cruise flight data (conditions 13 through 17) in Volume IV.

At each initial test condition an approximate aircraft trim attitude was set up and the following variables exercised in turn, angle of attack, yaw angle, longitudinal cyclic pitch, lateral cyclic pitch, collective pitch, wing flap setting and RPM. Each data file corresponding to an initial flight condition contains the six components of force and moment (and power) on the left rotor, the right rotor and also the total airframe forces and moments. This data is followed by alternating chord bending, flap bending and pitch link loads on the left and right rotor respectively. The test variables are first plotted versus α then yaw, etc. as depicted in Table 3. Each appendix number corresponds to a flight condition. For example appendix 5 corresponds to flight condition 5 which is I_N = 70° at a speed which is representative of full scale 100 knots. Thus Figures 5-001 through 5-024 are the measured data as functions of α. Figures 5-025 through 5-048 are the measured data as

TRANSITION DATA ORGANIZATION

- LEFT ROTOR: C_T, C_P, C_{NF}, C_{SF}, C_{PM}, C_{YM}
- RIGHT ROTOR: C_T, C_P, C_{NF}, C_{SF}, C_{PM}, C_{YM}
- TOTAL AIRCRAFT: C_L, C_{SF}, C_{AX}, C_{PM}, C_{YM}, C_{RM}

VS

- α^0
- YAW^0
- LONGITUDINAL CYCLIC
- LATERAL CYCLIC
- $\dot{\theta}\,75^0$
- $\delta_F{}^0$
- RPM

ALT CHORD BENDING LEFT
ALT FLAP BENDING LEFT
ALT PITCH LINK LOAD LEFT
ALT CHORD BEND RT
ALT FLAP BEND RT
ALT PITCH LINK LOAD RT

TABLE 3. TEST VARIABLE PLOTTING SEQUENCE

functions of yaw angle and so on. This organization and sequencing of test information is only changed when measured data were found to be spurious for reasons of instrumentation failure, etc. as noted in the instrumentation log given in Volume I.

Section 3 of this report contains notes pertaining to the data sets shown in this document and provides an account of the cases where data was found to be in error and discarded and also those cases where although no proof of error is apparent the information should be treated with caution. Fortunately, these cases amount to a small fraction of the overall results.

One further notation is necessary before the data provided can be usefully interpreted. During a run where one test variable is being exercised it is necessary to know the constant values of the other test variables. These data are identified in Table 4 for test conditions 5 through 8 and are referenced by data set number, figure number and test variable name all of which are also given on the corresponding data graphs in the appendix. Thus for data set 5 the test constants during the angle of attack sweep on Run 54 (Data figures 5-001 to 5-024) can be obtained from Table 4 as

V Full Scale (Kts)	99 Kts.
αfuse	Variable

TEST VARIABLES HELD CONSTANT

CONDITION	PARAMETER VARIED	FIGURES	V	α_{FUSE}	I_N	RPM	θ_{75_L}	A_{1_L}	B_{1_L}	δ_{F_L}	θ_{75_R}	A_{1_R}	B_{1_R}	δ_{F_r}	β	DATA SET
TRANSITION I_N = 70° V_{FS} = 100 KTS	α	1-24	99		70	1185	13.6	3.6	5.2	61	12.5	3.9	4.6	61.0	.1	5
	YAW ANGLE	25-48	99	-5.0	70	1184	13.4	3.7	5.4	61	12.3	4.0	5.4	61.0		
	LONG. CYC.	49-72	100	-6.0	70	1185	13.3	4.3		61	12.6	4.3		61.0	0	
	LAT. CYC.	73-96	100	-6.0	70	1185	13.3		5.6	61	12.2		5.4	61.0	0	
	$\theta_{.75}$	97-120	100	-6.0	70	1185		4.2	5.5	61		4.6	5.0	61.0	0	
	δ_{FLAP}	121-144	100	-6.0	70	1183	13.5	4.2	5.3		12.2	4.5	5.2		0	
	RPM	145-168	100	-6.0	70		13.5	4.2	5.3	61	12.2	4.5	5.2	61.0	0	
TRANSITION I_N = 70° V_{FS} = 140 KTS	α	1-18	140		70	1185	18.2	6.0	5.9	60	17.3	7.2	6.6	60.0	-.5	6
	YAW ANGLE	19-36	140	-11.0	70	1183	18.2	6.0	5.9	60	17.2	7.2	6.6	60.0		
	LONG. CYC.	37-54	140	-10.9	70	1183	17.9	5.7		60	17.7	7.1		60.0	-.5	
	LAT. CYC.	55-72	140	-10.9	70	1185	18.3		5.9	60	17.5		6.9	60.0	-.5	
	$\theta_{.75}$	73-90	140	-10.9	70	1183		5.7	5.7	60		7.0	5.5	60.0	-.5	
	δ_{FLAP}	91-108	140	-10.9	70	1183	18.0	5.8	6.1		17.3	7.0	6.4		-.5	
	RPM	109-126	140	-10.9	70		18.0	5.8	6.1	61	17.3	7.0	6.4	61.0	-.5	
TRANSITION I_N = 50° VFS = 100 KTS	α	1-24	100		50	1185	15.9	3.0	4.3	42	14.6	3.5	4.0	42.0	0	7
	YAW ANGLE	25-48	100	-9.5	50	1184	16.3	3.5	4.2	41	15.0	4.1	4.1	42.0		
	LONG. CYC.	49-72	100	-9.5	50	1185	16.0	3.0		41	15.0	4.0		42.0	-.6	
	LAT. CYC.	73-96	100	-9.5	50	1183	16.0		4.3	41	15.0		4.2	42.0	-.6	
	$\theta_{.75}$	97-120	100	-9.5	50	1183		3.2	4.1	41		4.0	3.8	42.0	-.6	
	δ_{FLAP}	121-144	100	-9.5	50	1185	16.2	3.2	4.1		14.9	4.0	4.0		-.6	
	RPM	145-168	100	-9.5	50		16.2	3.2	4.0	42	14.9	4.0	4.0	42.0	-.6	
TRANSITION I_N = 50° V_{FS} = 140 KTS	α	1-18	140		50	1185	22.5	5.0	4.75	42	20.6	5.9	4.5	42.0	-.6	8
	YAW ANGLE	19-36	140	-8.0	50	1185	22.5	5.0	4.75	42	20.6	5.9	4.5	42.0		
	LONG. CYC.	37-54	140	-8.0	50	1185	22.5	5.0		42	20.5	5.7		42.0	-.5	
	LAT. CYC.	55-72	140	-8.0	50	1185	22.5		4.5	42	20.6		4.5	42.0	-.5	
	$\theta_{.75}$	73-90	140	-8.0	50	1185		5.2	4.4	42		5.6	4.0	42.0	-.5	
	δ_{FLAP}	91-108	140	-8.0	50	1185	22.2	5.5	4.3		20.7	5.7	4.6		-.5	
	RPM	109-126	140	-8.0	50		22.6	5.4	4.6	42	20.9	5.8	4.7	42.0	-.5	

TABLE 4. CONSTANT VALUES OF TEST VARIABLES

I_N	70°
RPM	1185
$\Theta_{.75}$ left	13.6°
A_1 left	3.6°
B_1 left	5.2°
δ_F left	61°
$\Theta_{.75}$ right	12.5°
A_1 right	3.9°
B_1 right	4.6°
δ_F right	61°
Yaw angle β	0.1°

3.0 DATA DESCRIPTION

This section of the report is intended to identify known areas of uncertainty in the experimental data to aid in the subsequent interpretation and use of the information. The largest source of significant error was due to the failure of the right hand rotor side force channel. This channel was found to be saturating intermittently during Run 82 and set to zero until Run 96. In the interim, checks were made to identify the problem which was found to be in the balance itself. Removal of the balance and fixing of this channel was judged to be not cost effective and would endanger the other existing data channels. From Run 96 on the left hand rotor side force signal was fed into the right hand side force computer input with its sign inverted to preserve sign conventions. This means that the right rotor data must be considered suspect for much of the test.

The data sets contained in this volume were obtained on test runs between Run 54 and Run 81.

Data set 5 (Test Runs 54 through 59) is presented in its entirety with no data channels obviously in error; however, the nature of the failure of the right hand side force channel was such that it did not always show up in static calibration and therefore right hand rotor data prior to finding the problem should be viewed with caution, especially the lateral data. The

longitudinal data will be much less affected since the interactions of side force on normal force and pitch moment are relatively small.

For Data Set 6 (Test Runs 75 through 81) the right hand rotor balance data are not included. The saturation problem found on Run 82 was in evidence in the data and on inspection it was found that the saturating channel caused large discrepancies in the computed output. The longitudinal data could be recovered at some subsequent time by feeding the computer dummy side force signals and rerunning the data tape. This was not done since similar data is available from the left hand rotor and the additional expense was not considered justified at this time.

Data Set 7 contains information from test runs 61 to 67 and is a complete set with no omissions. The comments made previously concerning data set 5 should be considered to apply here also.

Data Set 8 was obtained on test runs 68 to 74. This data set does not contain right hand rotor balance data for the same reason as quoted for set 6, and the same notes apply.

A complete log of instrumentation changes, check calibrations, problems and corrective actions is provided in volume I if further information is required.

$I_{IN} = 70^{O}$ V_{FS} = 100 KTS.

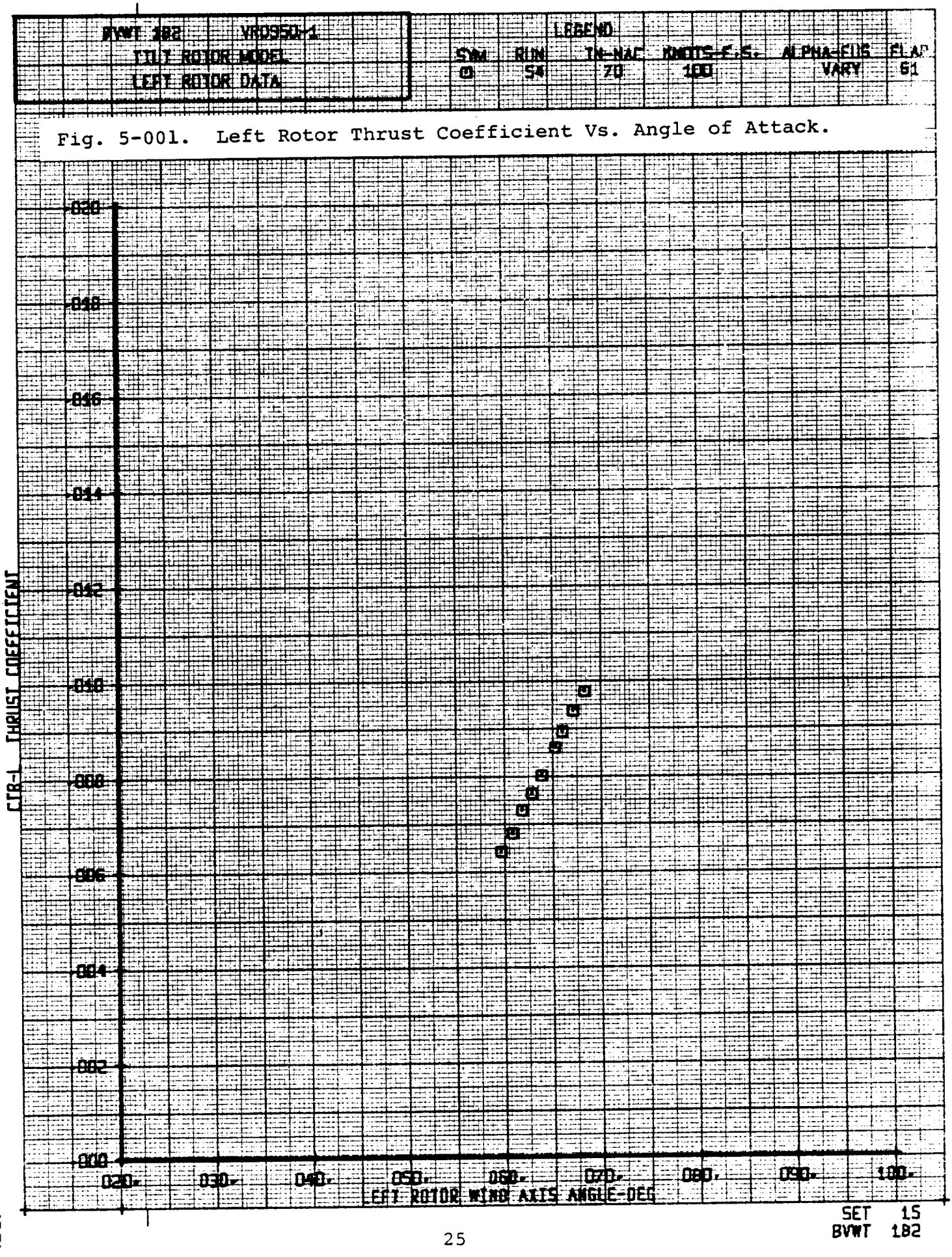


Fig. 5-001. Left Rotor Thrust Coefficient Vs. Angle of Attack.

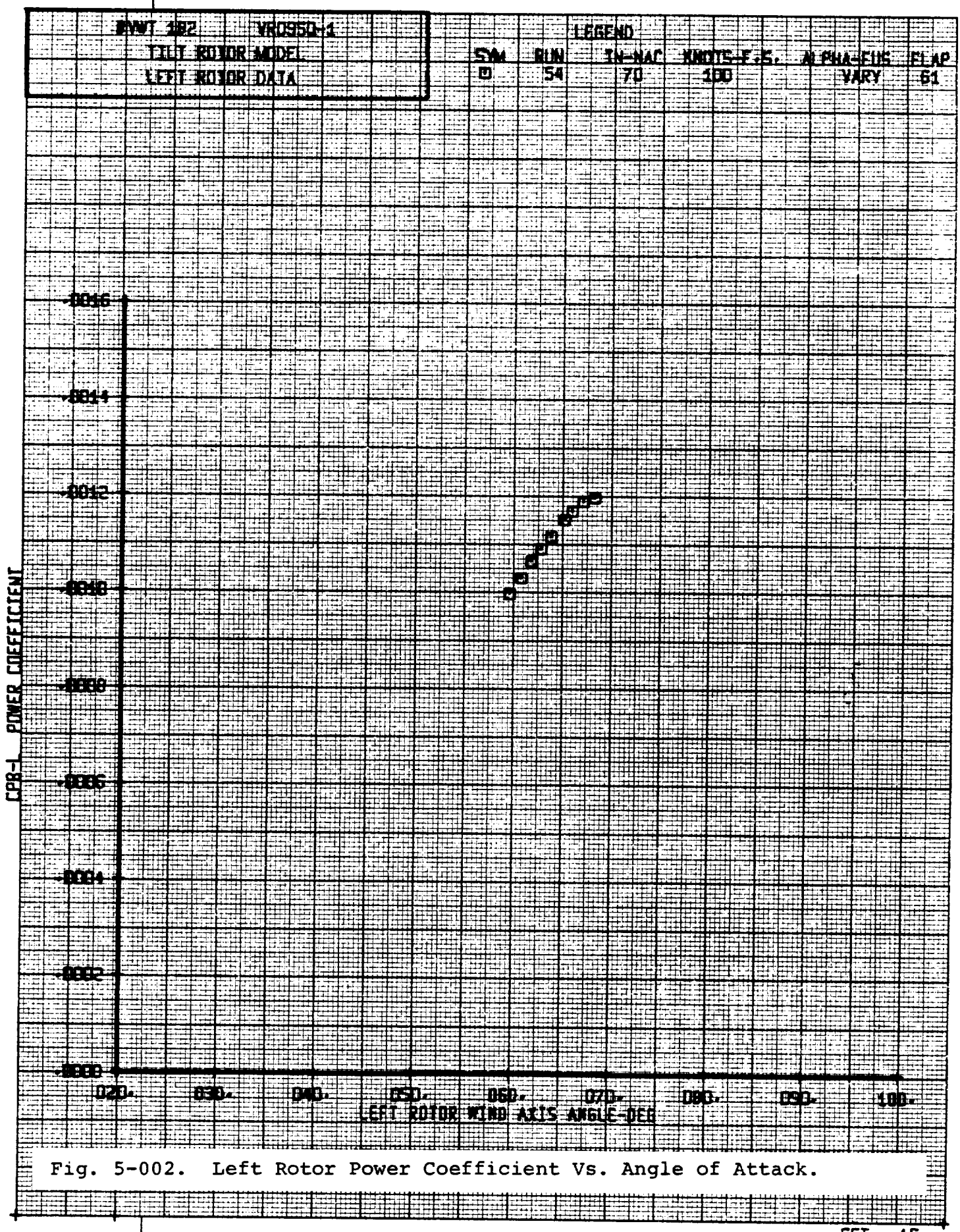


Fig. 5-002. Left Rotor Power Coefficient Vs. Angle of Attack.

15
182

SET 15
BVWT 182

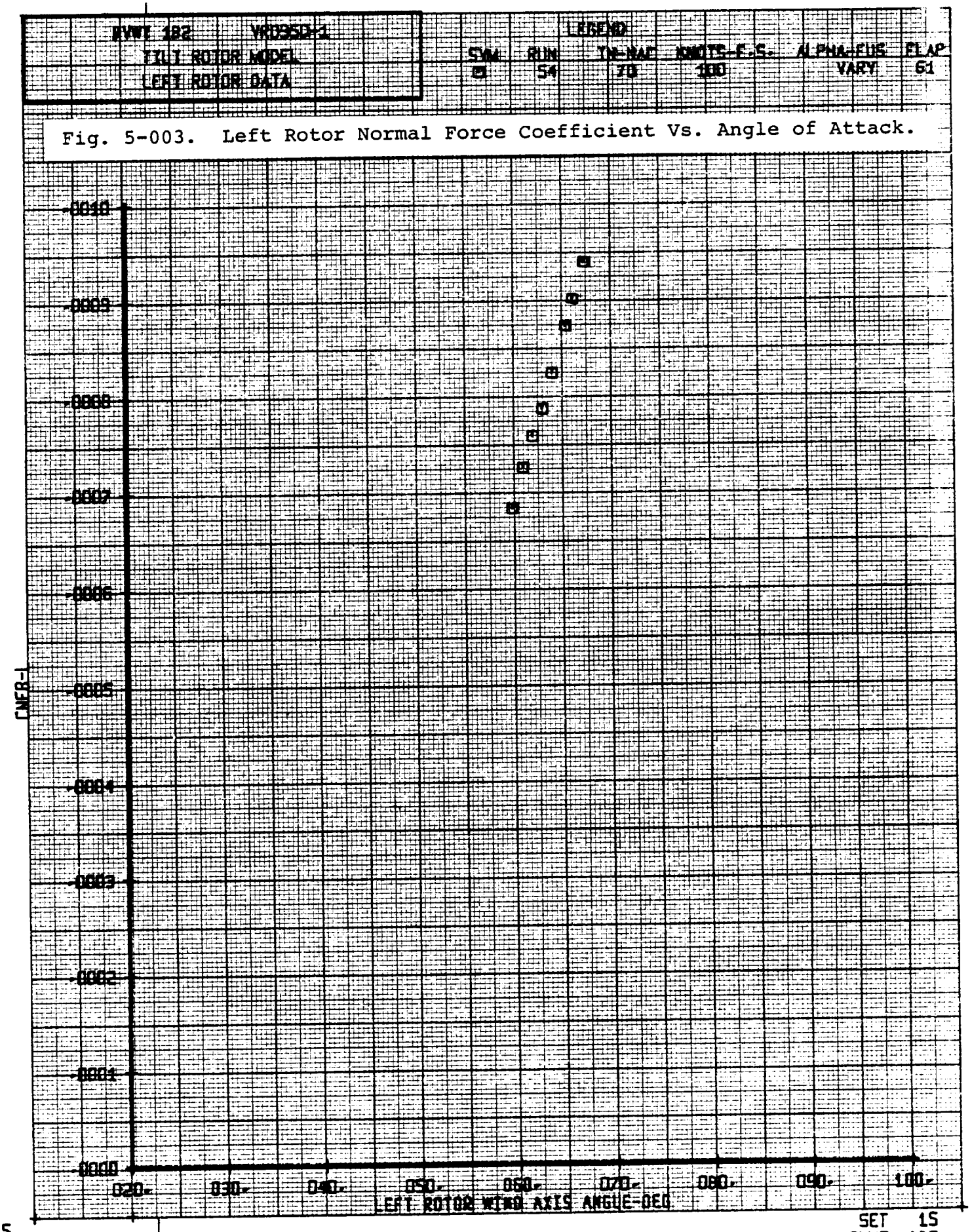


Fig. 5-003. Left Rotor Normal Force Coefficient Vs. Angle of Attack.

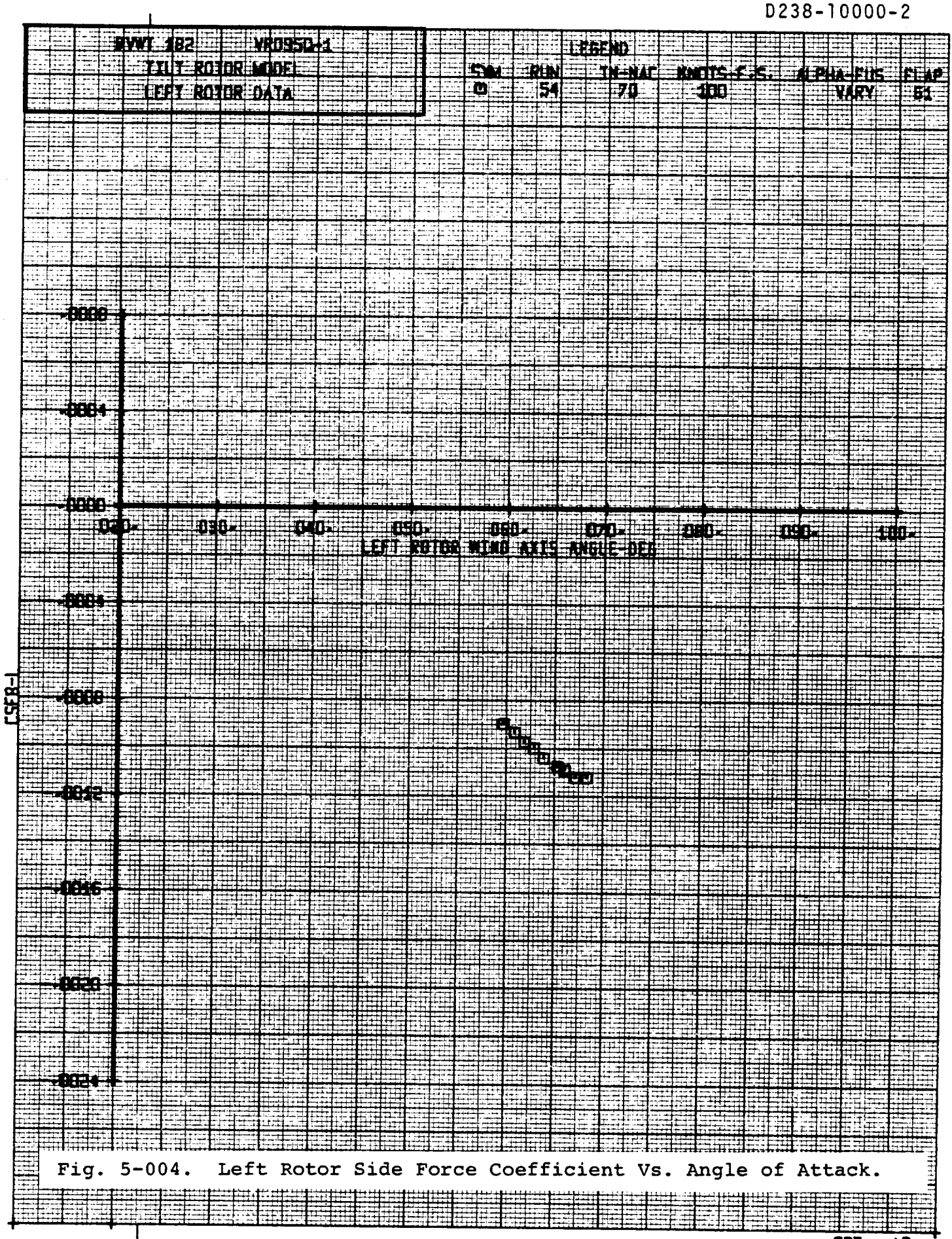


Fig. 5-004. Left Rotor Side Force Coefficient Vs. Angle of Attack.

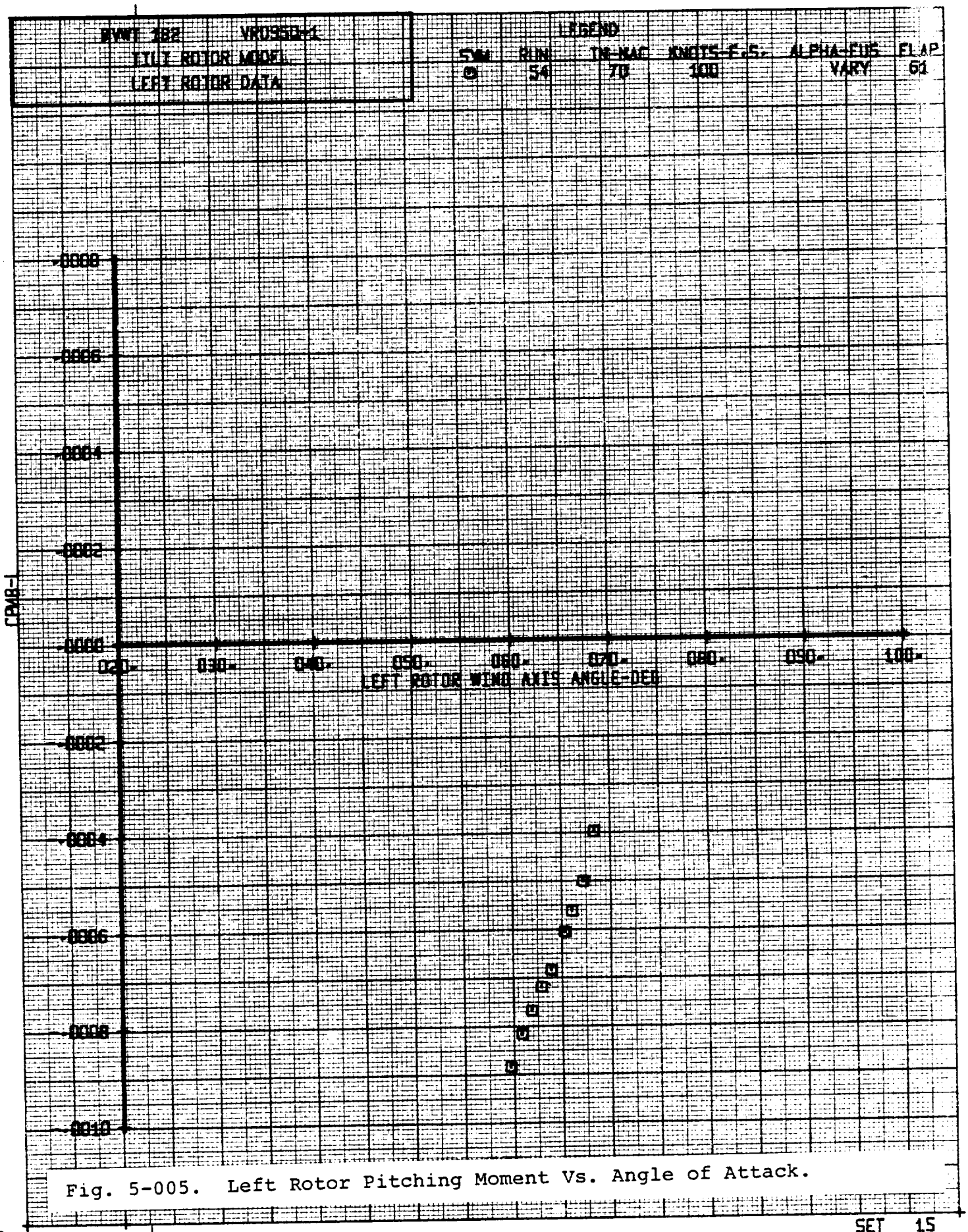


Fig. 5-005. Left Rotor Pitching Moment Vs. Angle of Attack.

FT 15
I 182

SET 15
BVWT 182

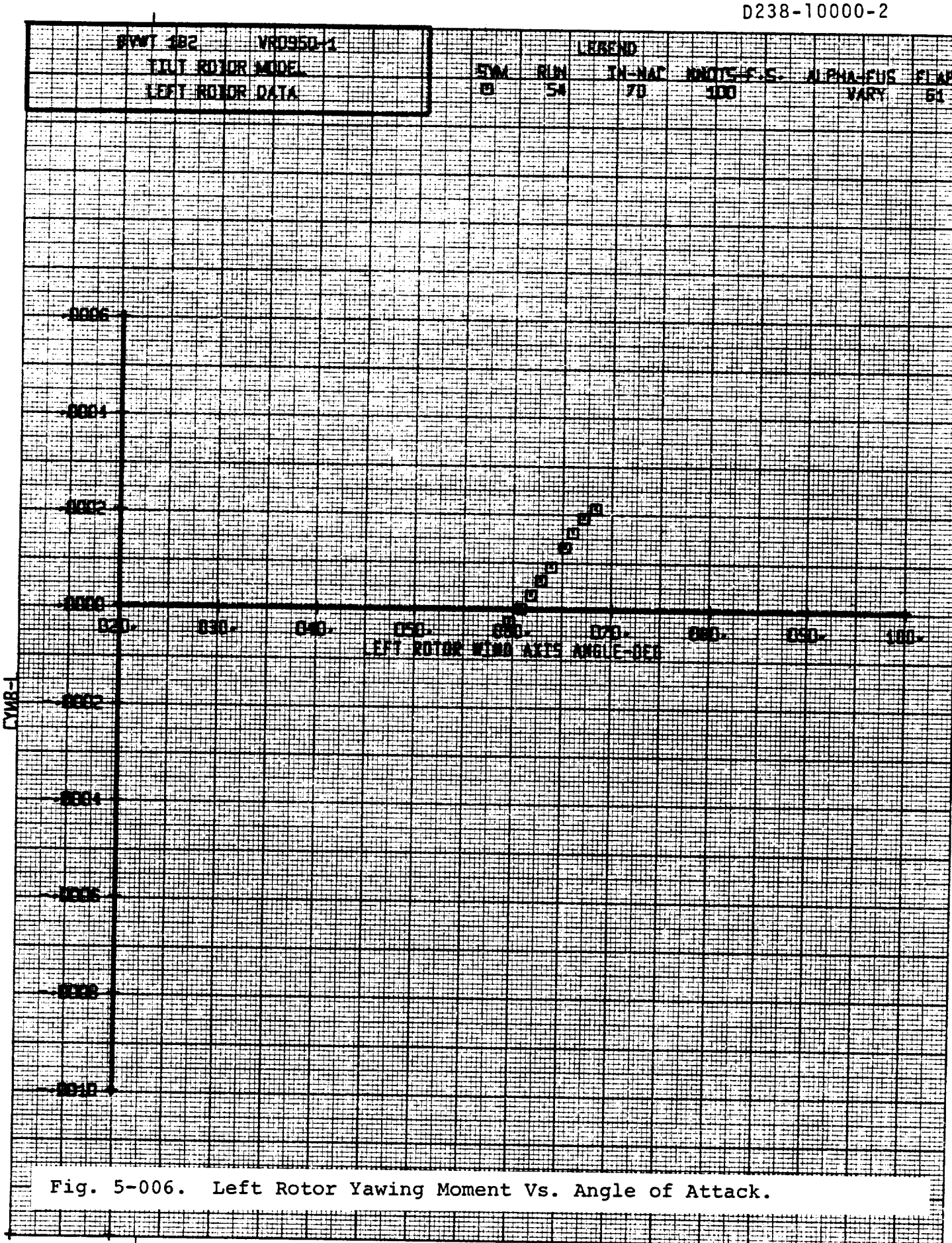


Fig. 5-006. Left Rotor Yawing Moment Vs. Angle of Attack.

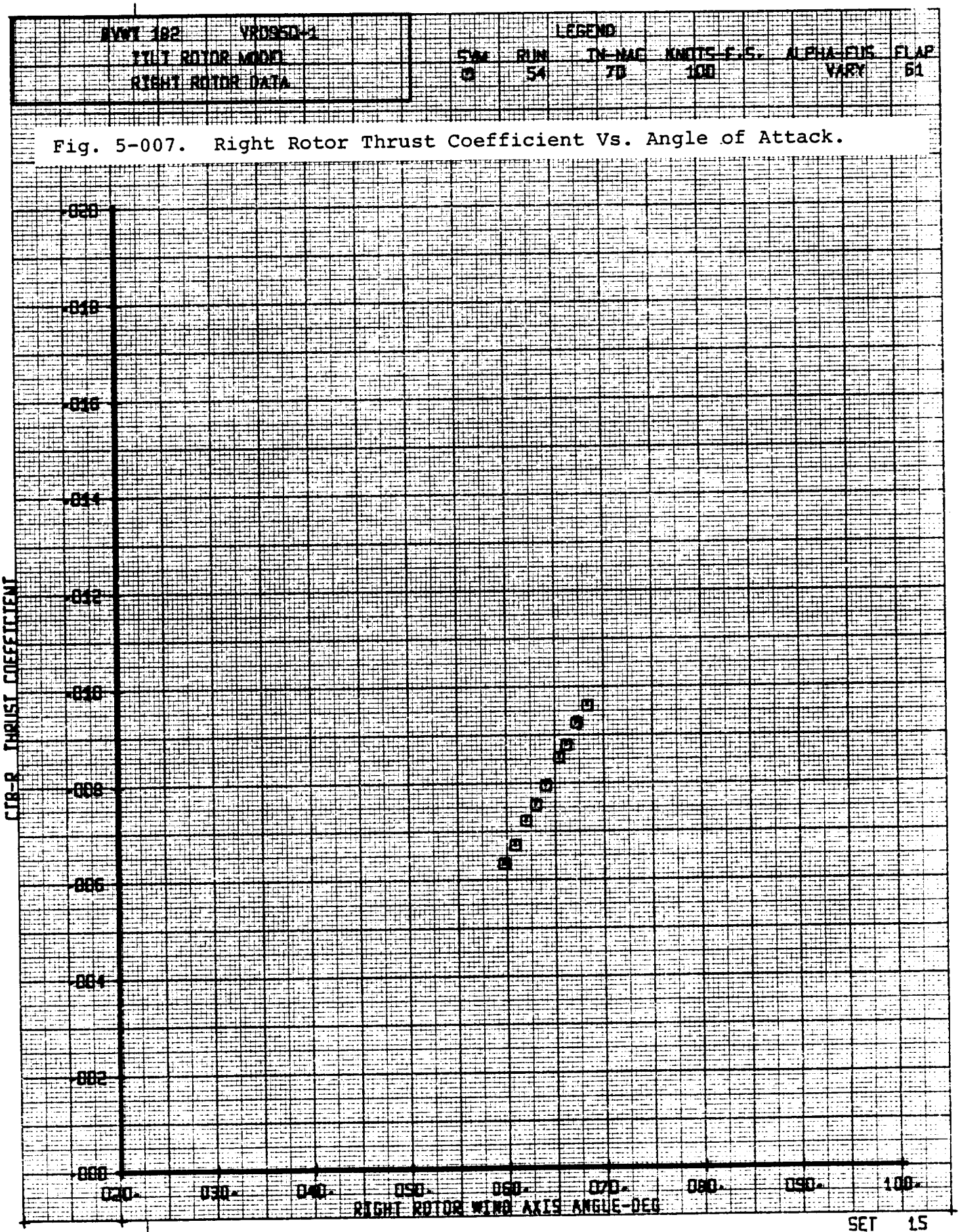


Fig. 5-007. Right Rotor Thrust Coefficient Vs. Angle of Attack.

ET 15
W 182

SET 15
BVWT 182

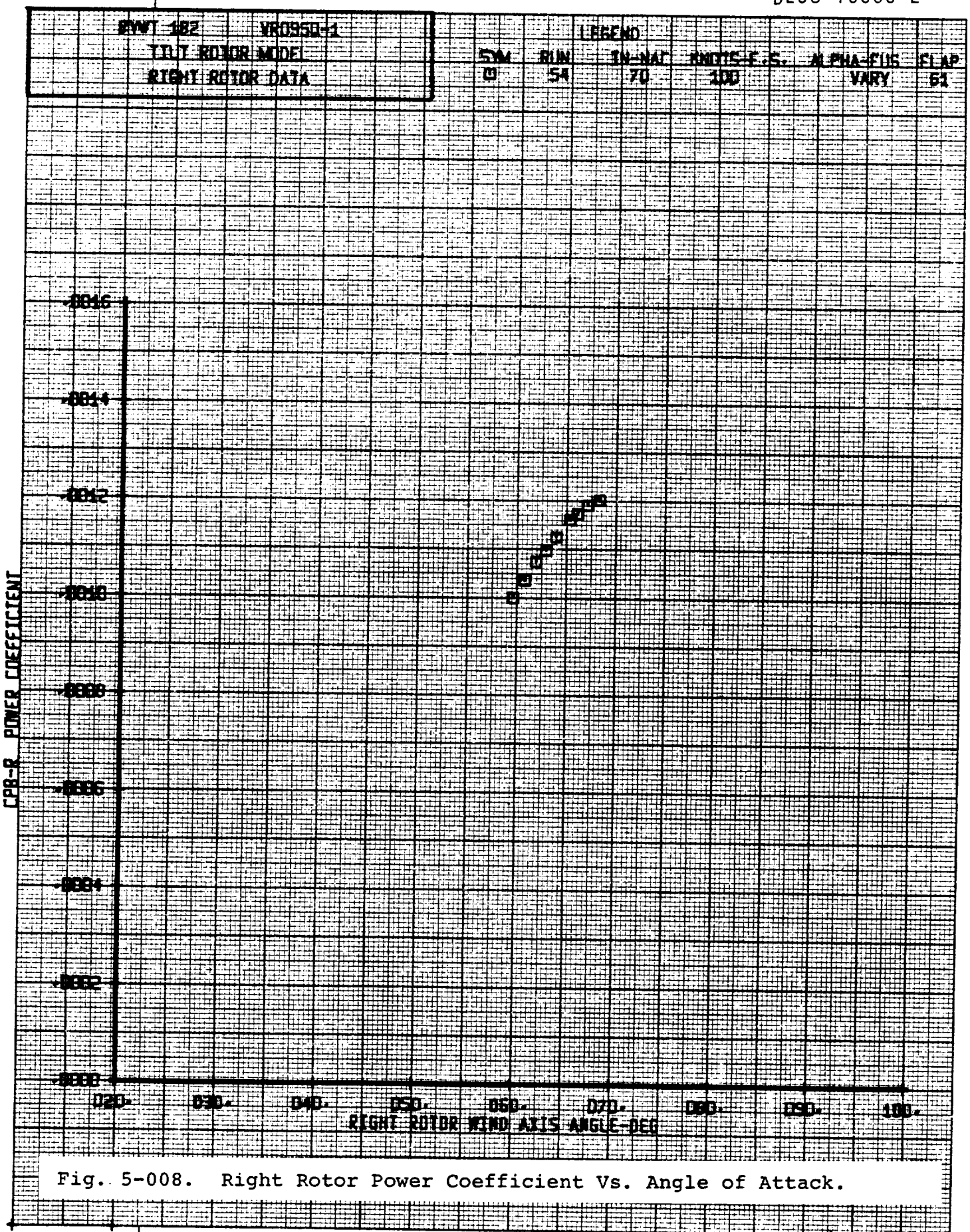


Fig. 5-008. Right Rotor Power Coefficient Vs. Angle of Attack.

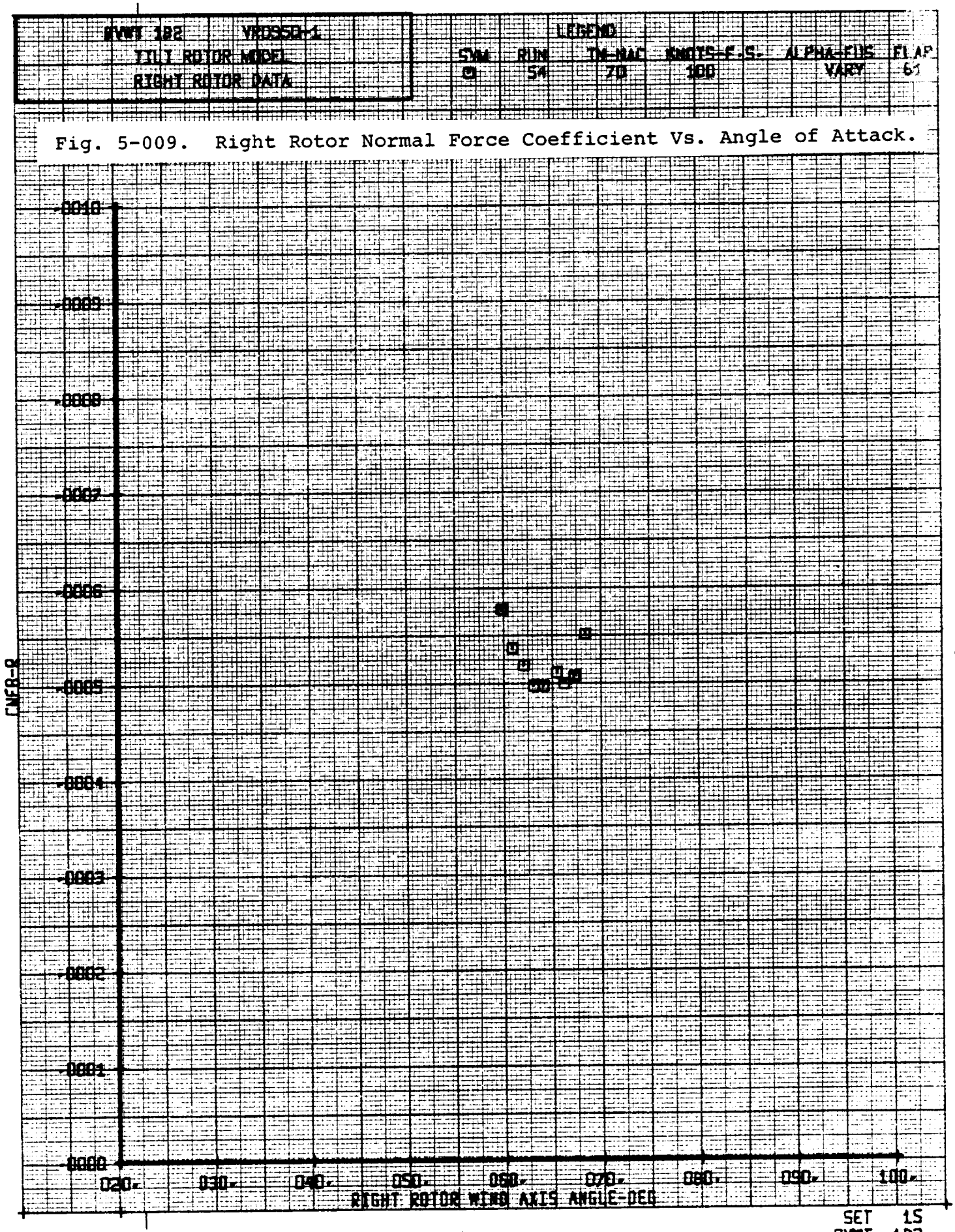


Fig. 5-009. Right Rotor Normal Force Coefficient Vs. Angle of Attack.

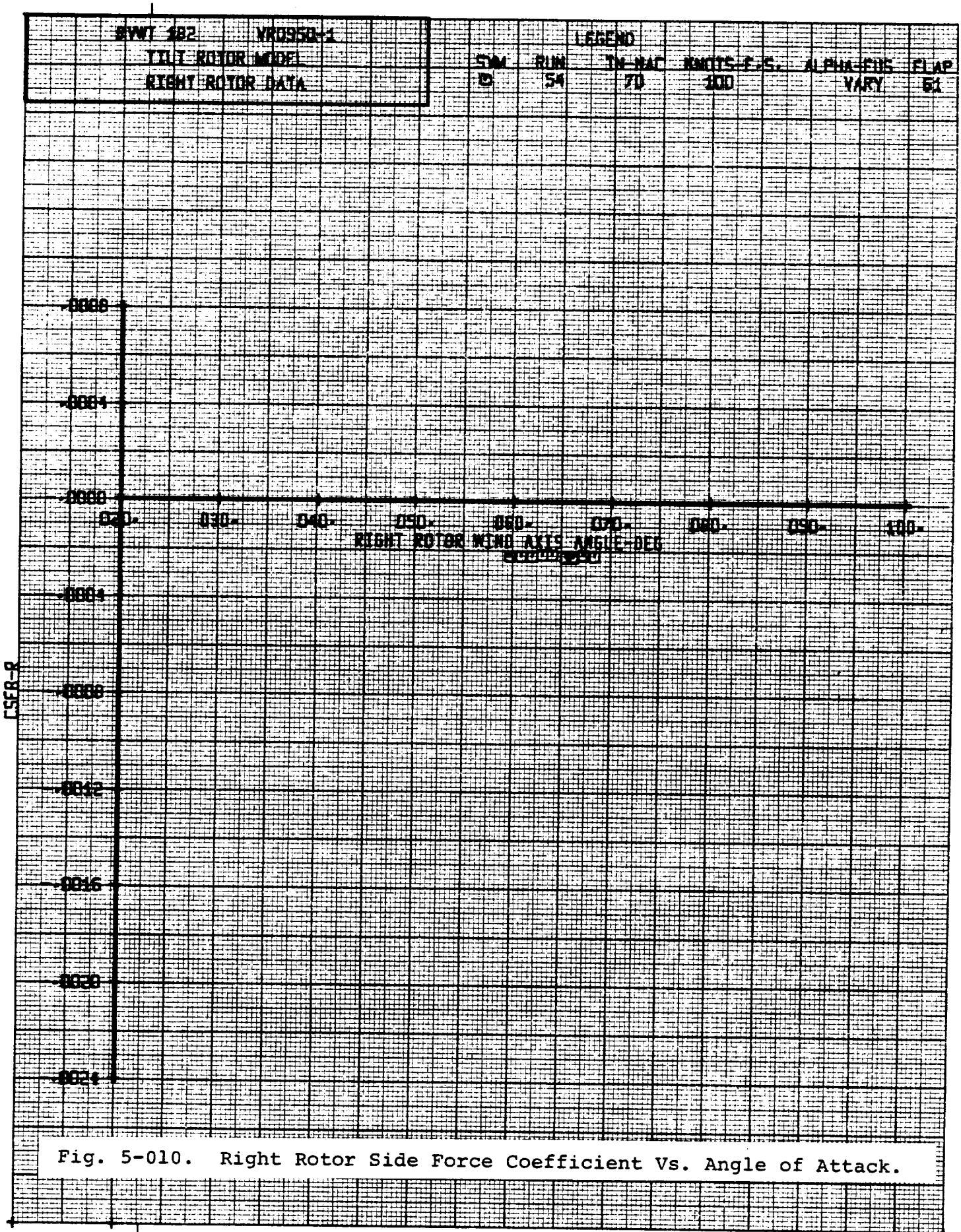


Fig. 5-010. Right Rotor Side Force Coefficient Vs. Angle of Attack.

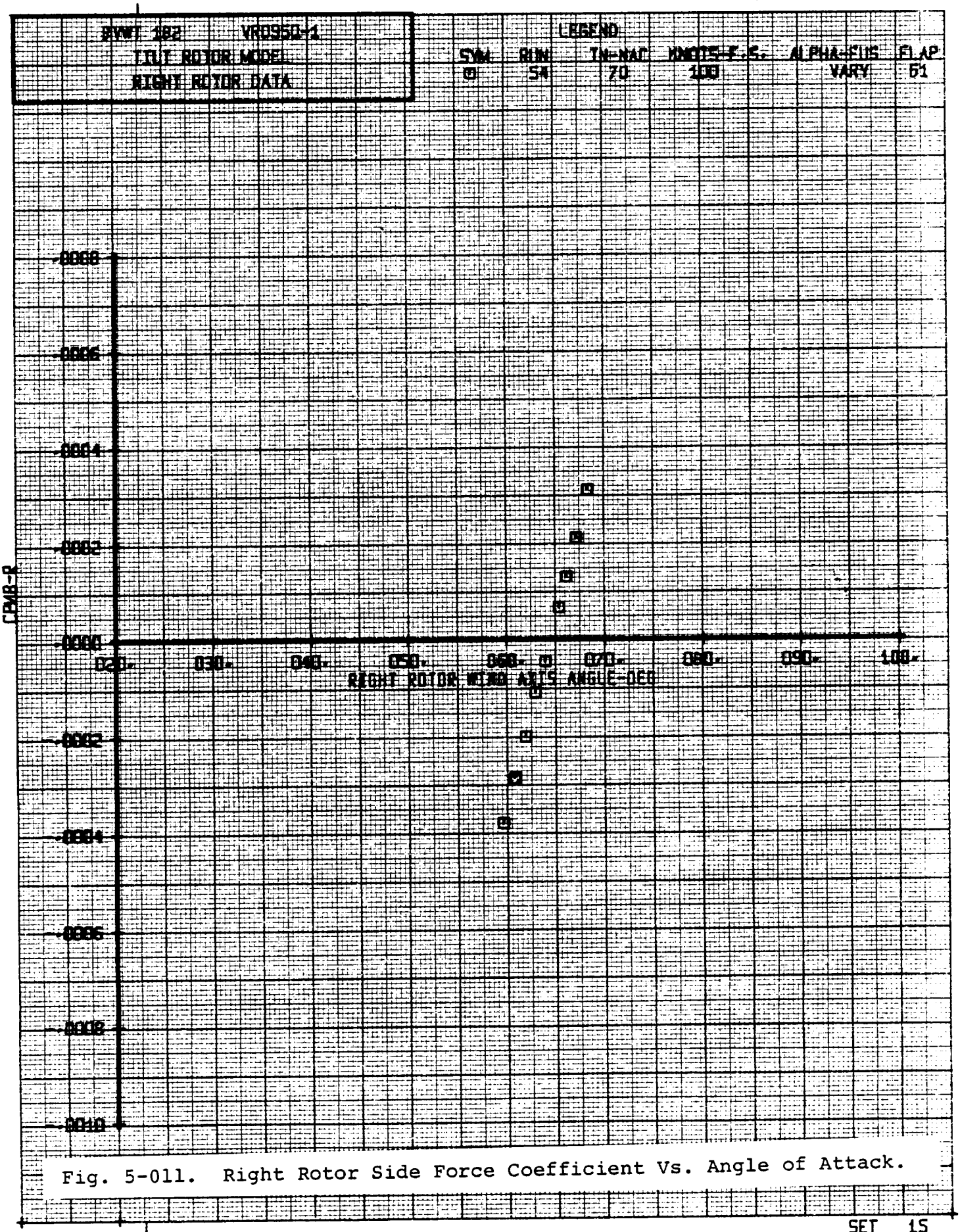


Fig. 5-011. Right Rotor Side Force Coefficient Vs. Angle of Attack.

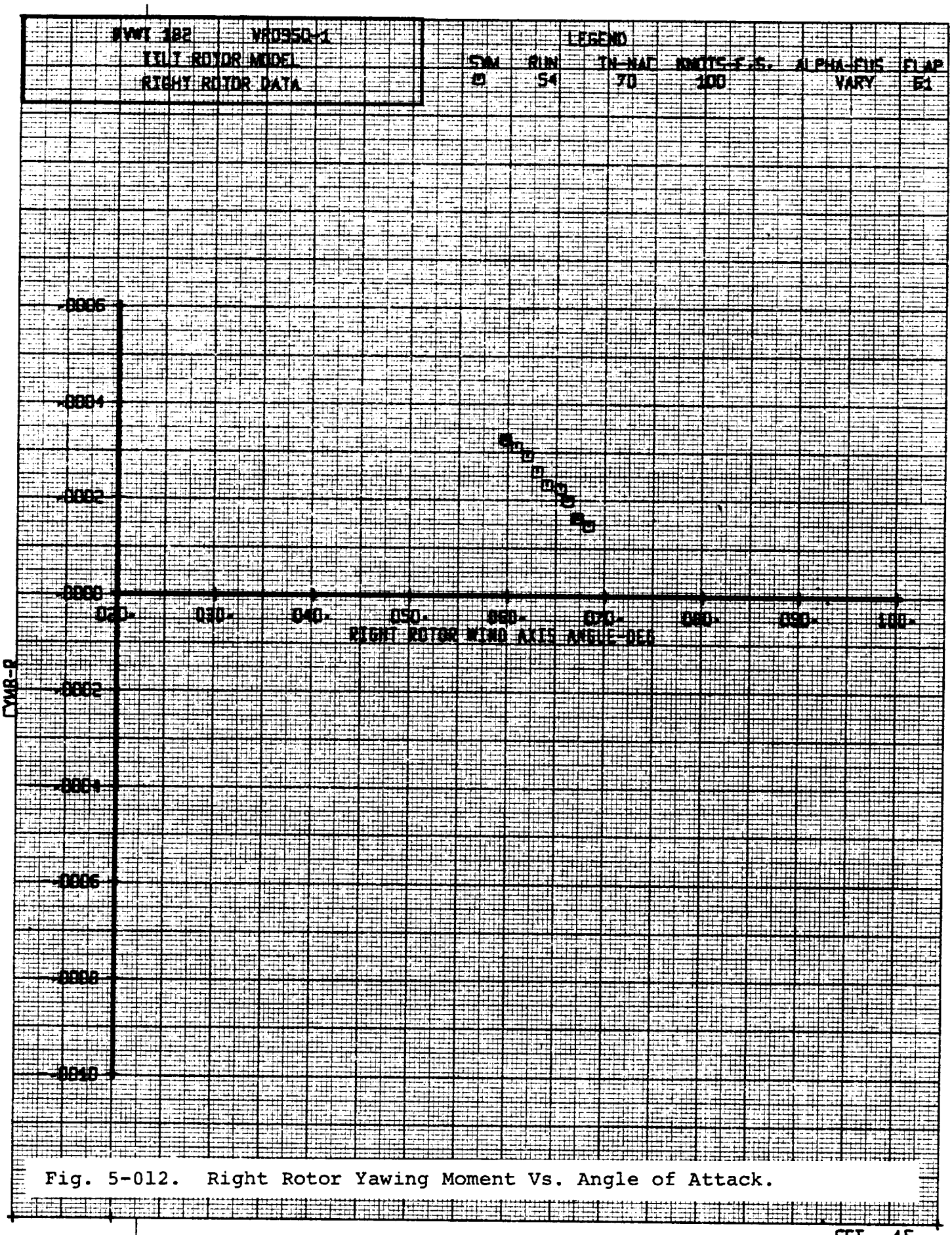


Fig. 5-012. Right Rotor Yawing Moment Vs. Angle of Attack.

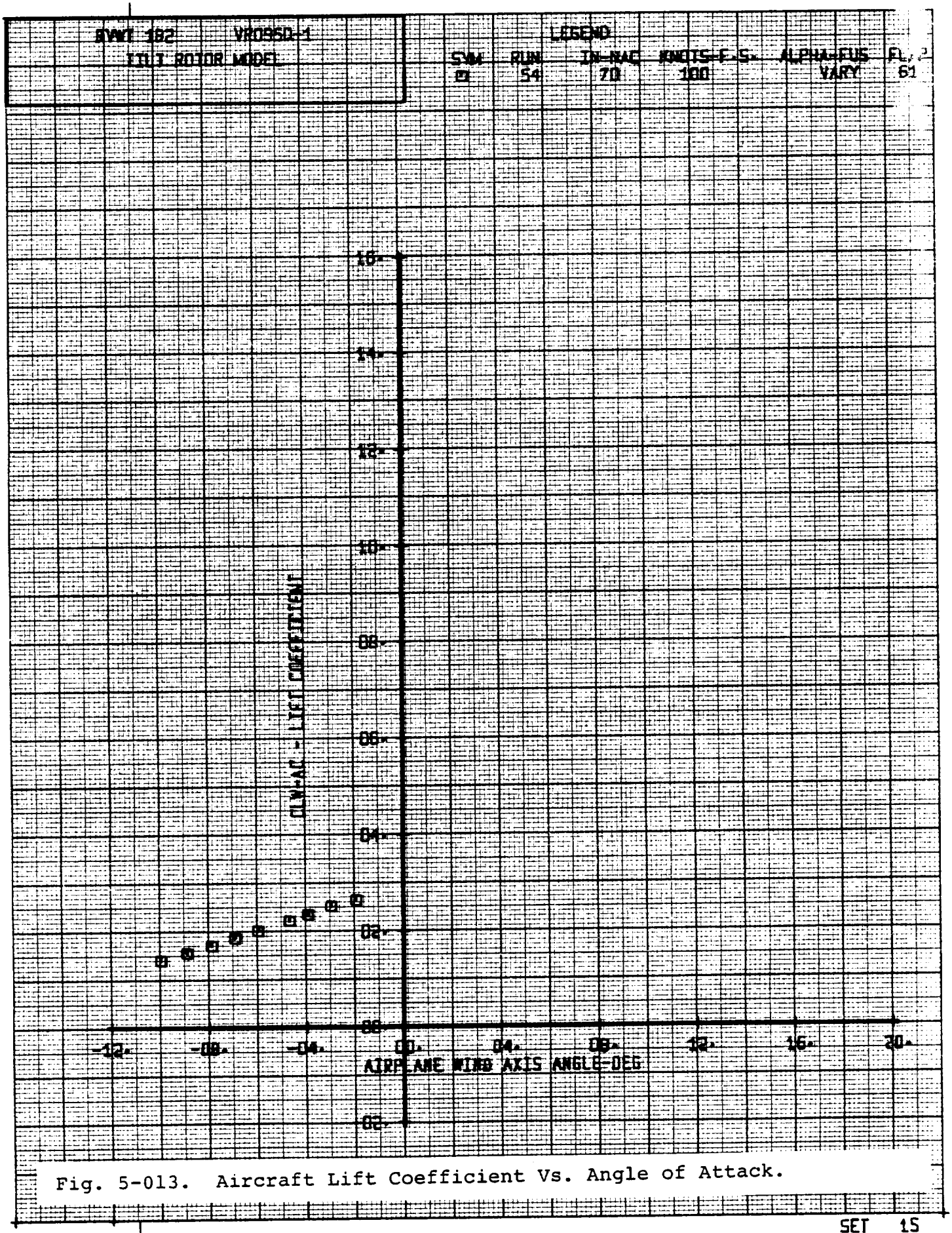


Fig. 5-013. Aircraft Lift Coefficient Vs. Angle of Attack.

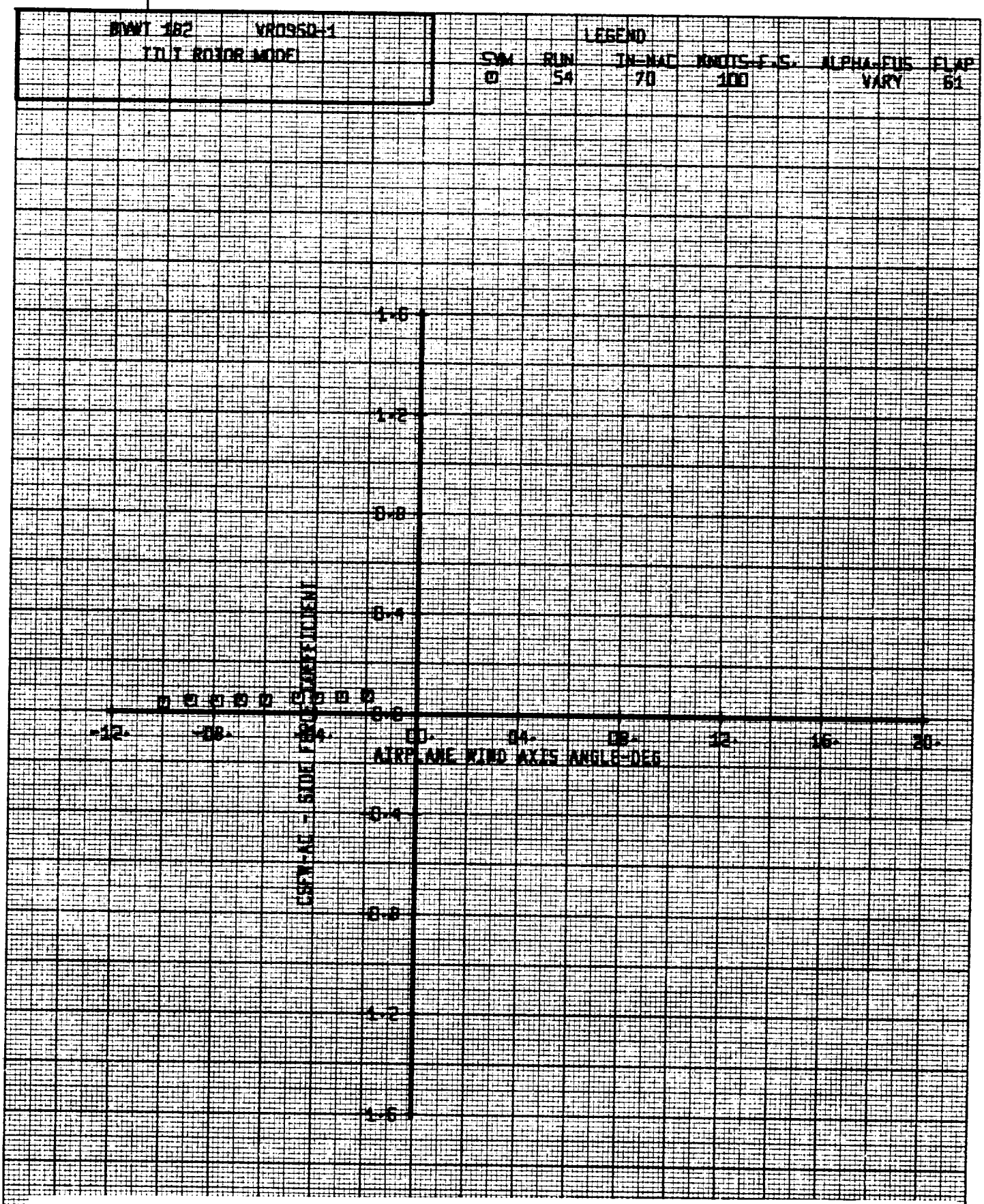


Fig. 5-014. Aircraft Side Force Coefficient Vs. Angle of Attack.

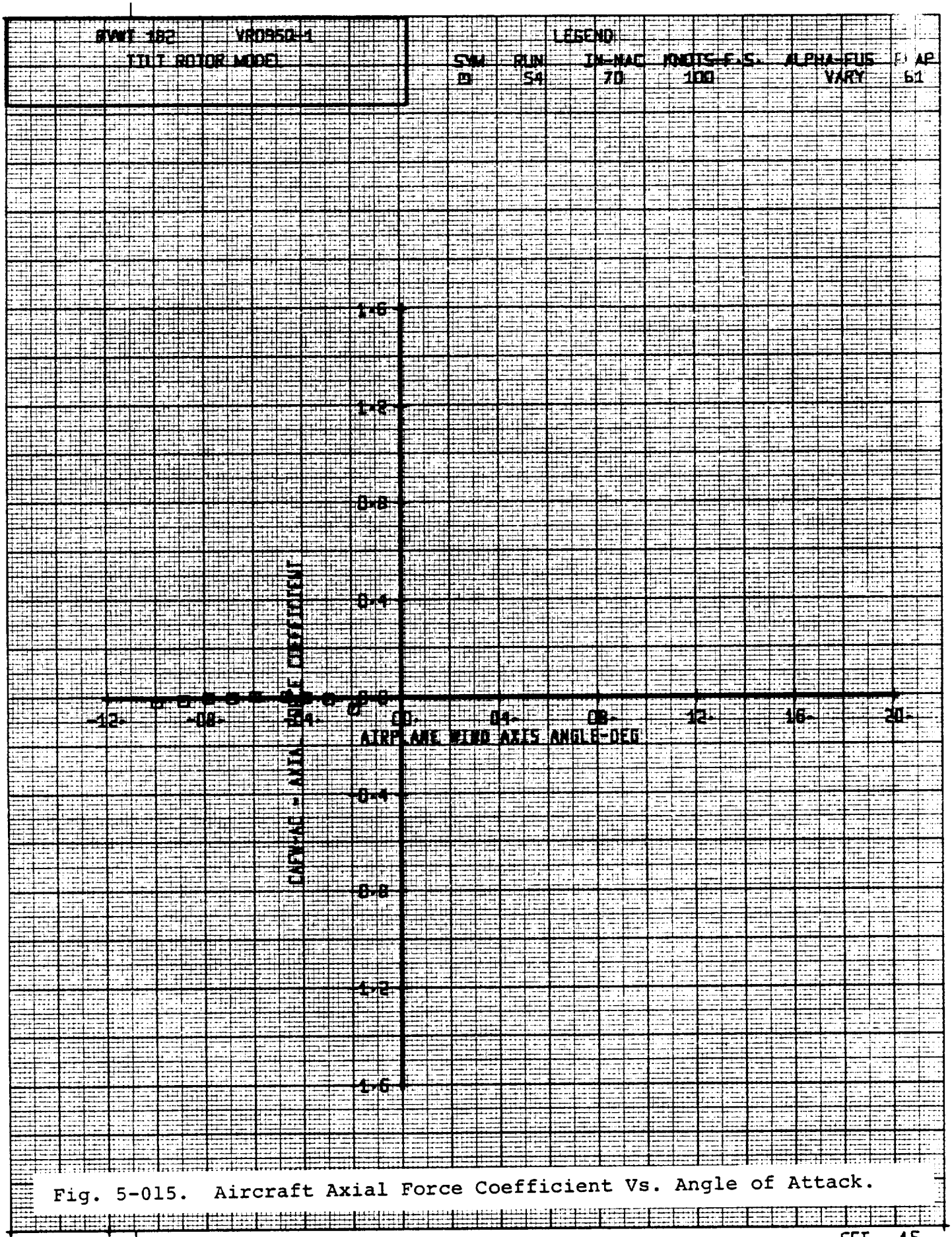


Fig. 5-015. Aircraft Axial Force Coefficient Vs. Angle of Attack.

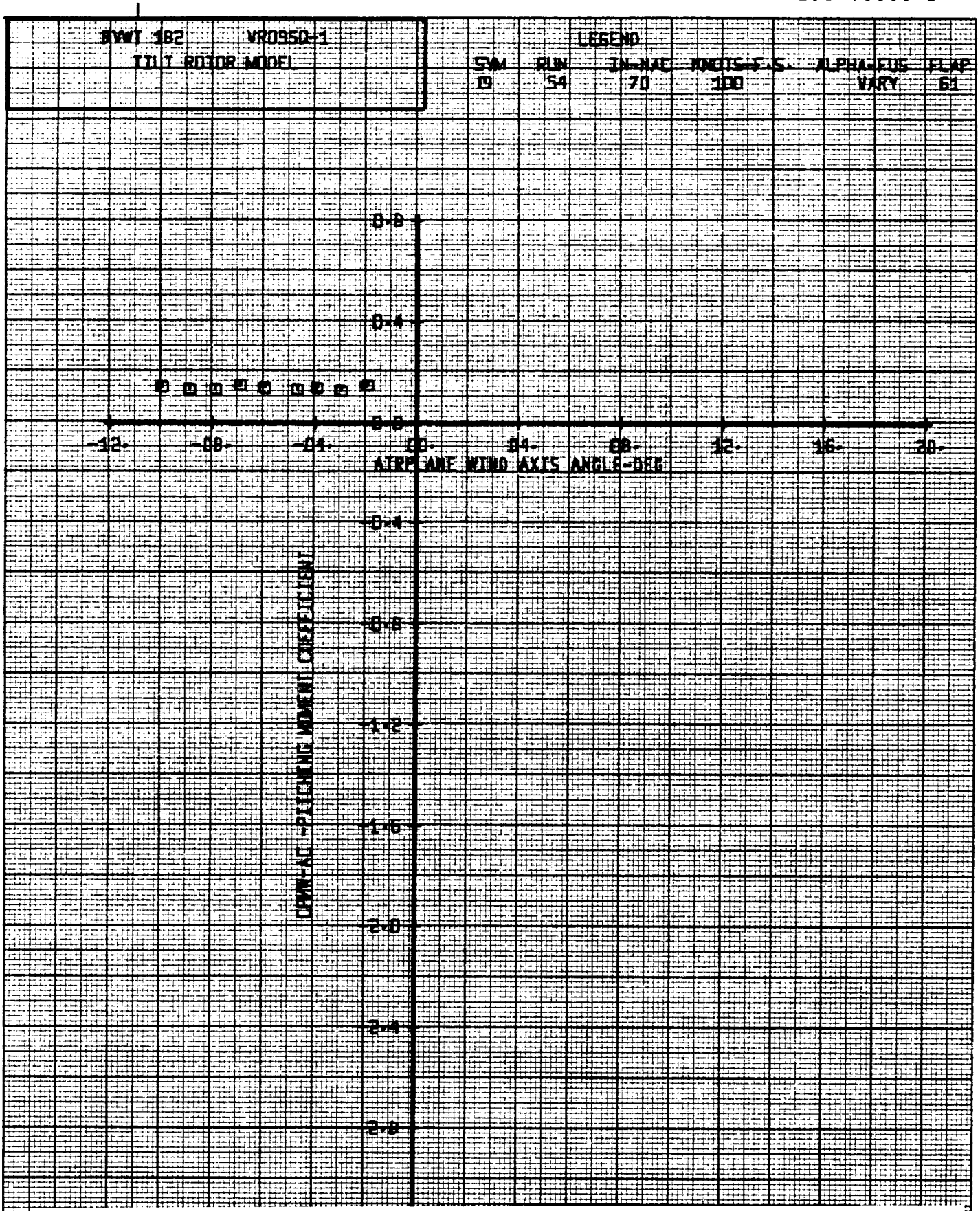


Fig. 5-016. Aircraft Pitching Moment Vs. Angle of Attack.

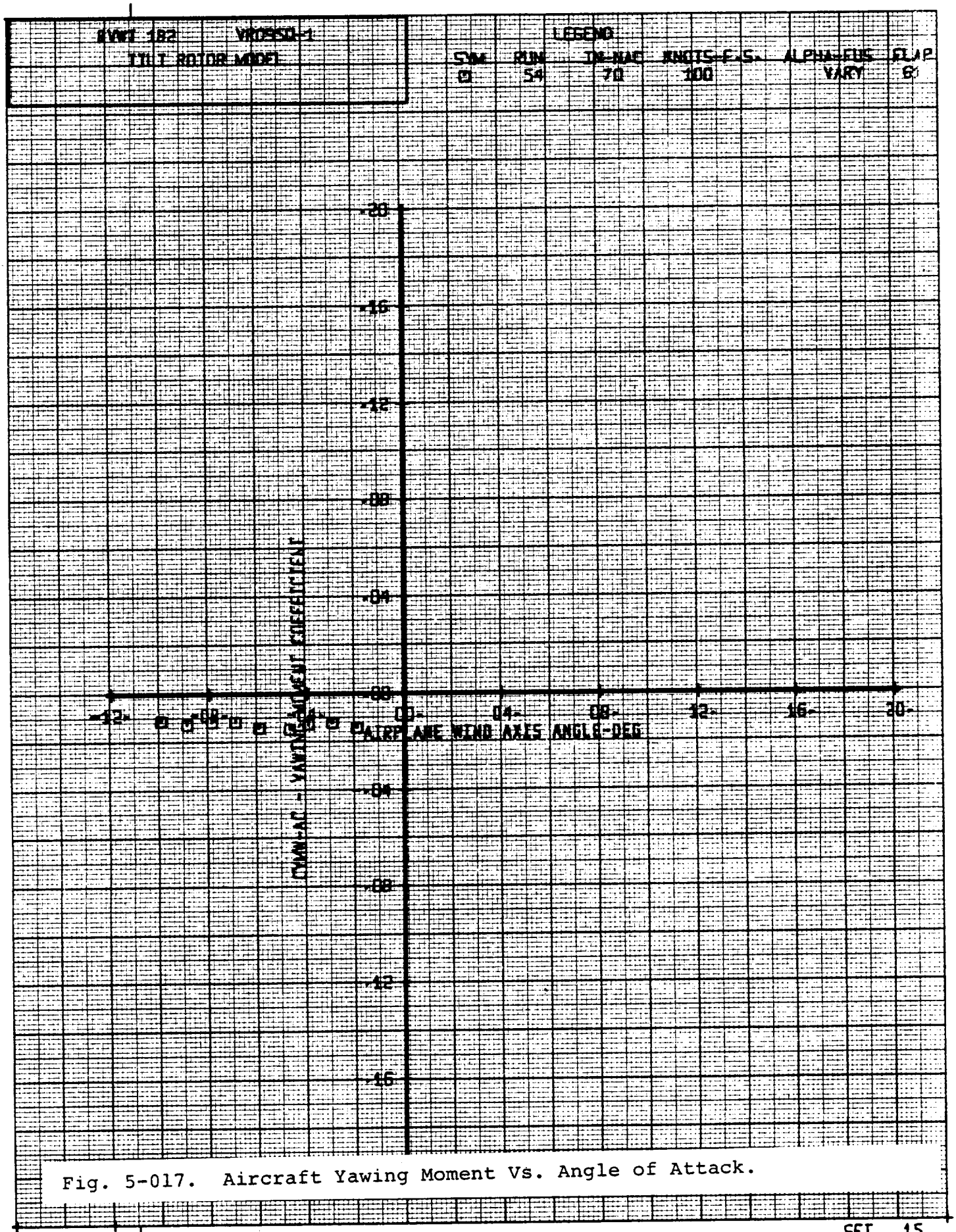


Fig. 5-017. Aircraft Yawing Moment Vs. Angle of Attack.

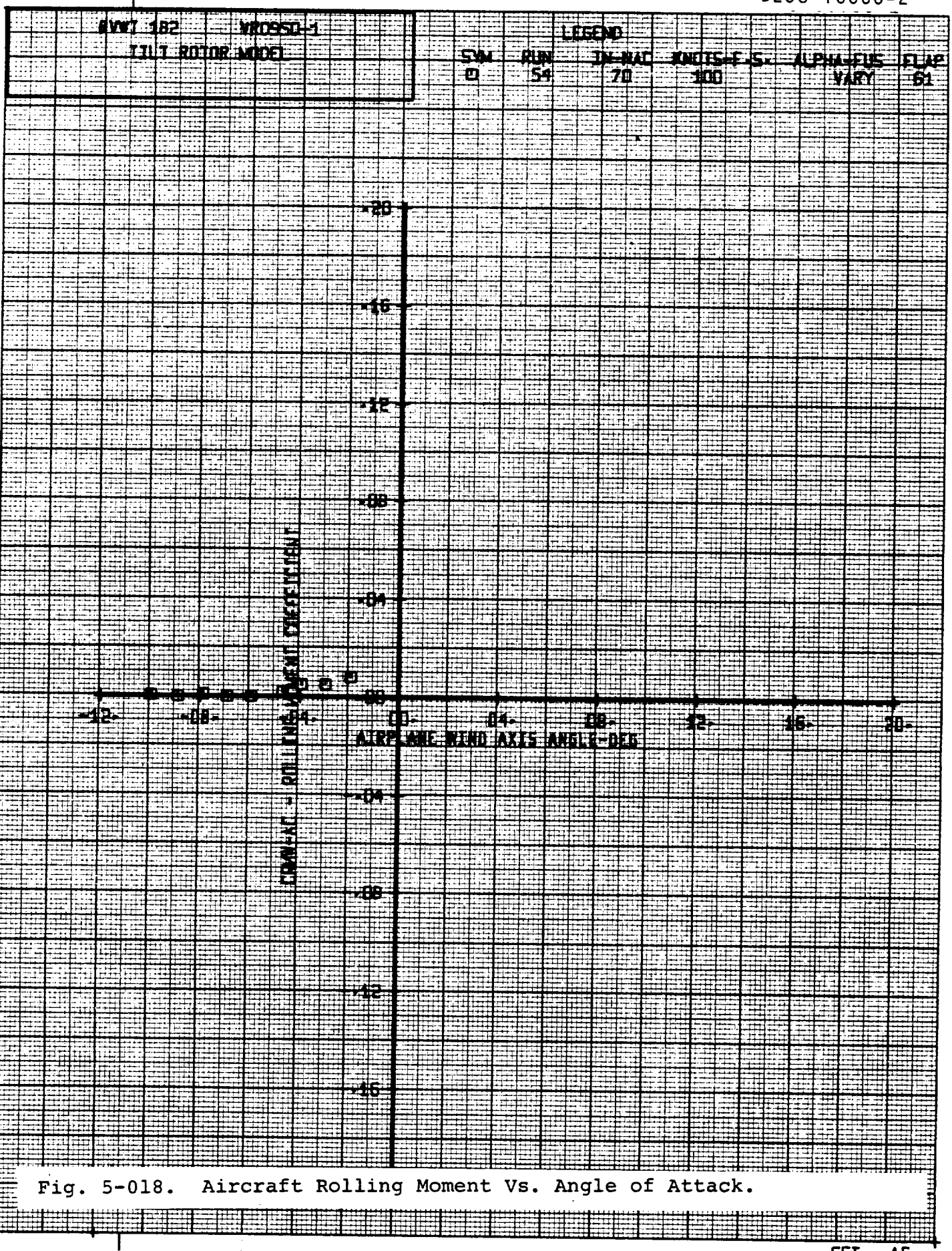


Fig. 5-018. Aircraft Rolling Moment Vs. Angle of Attack.

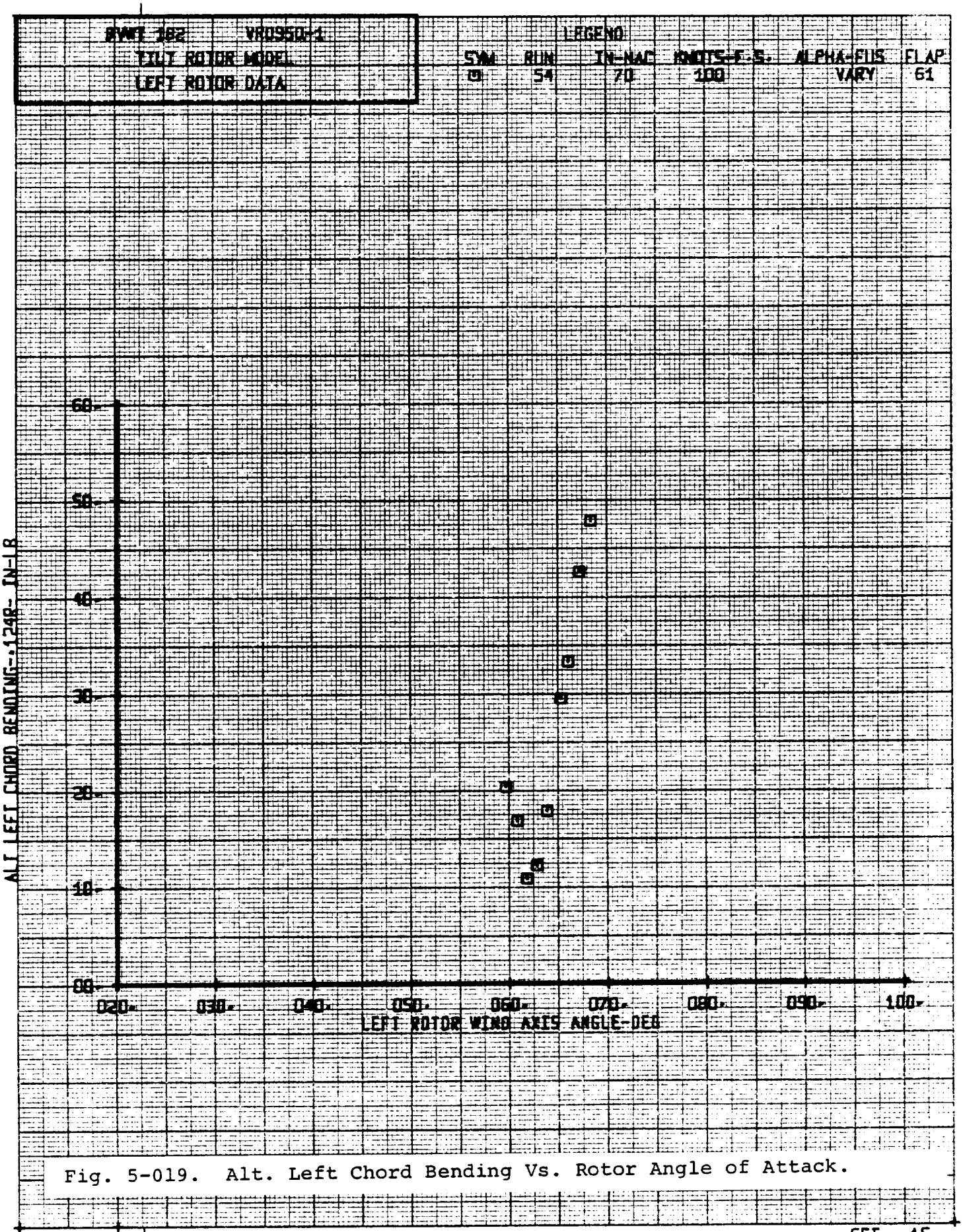


Fig. 5-019. Alt. Left Chord Bending Vs. Rotor Angle of Attack.

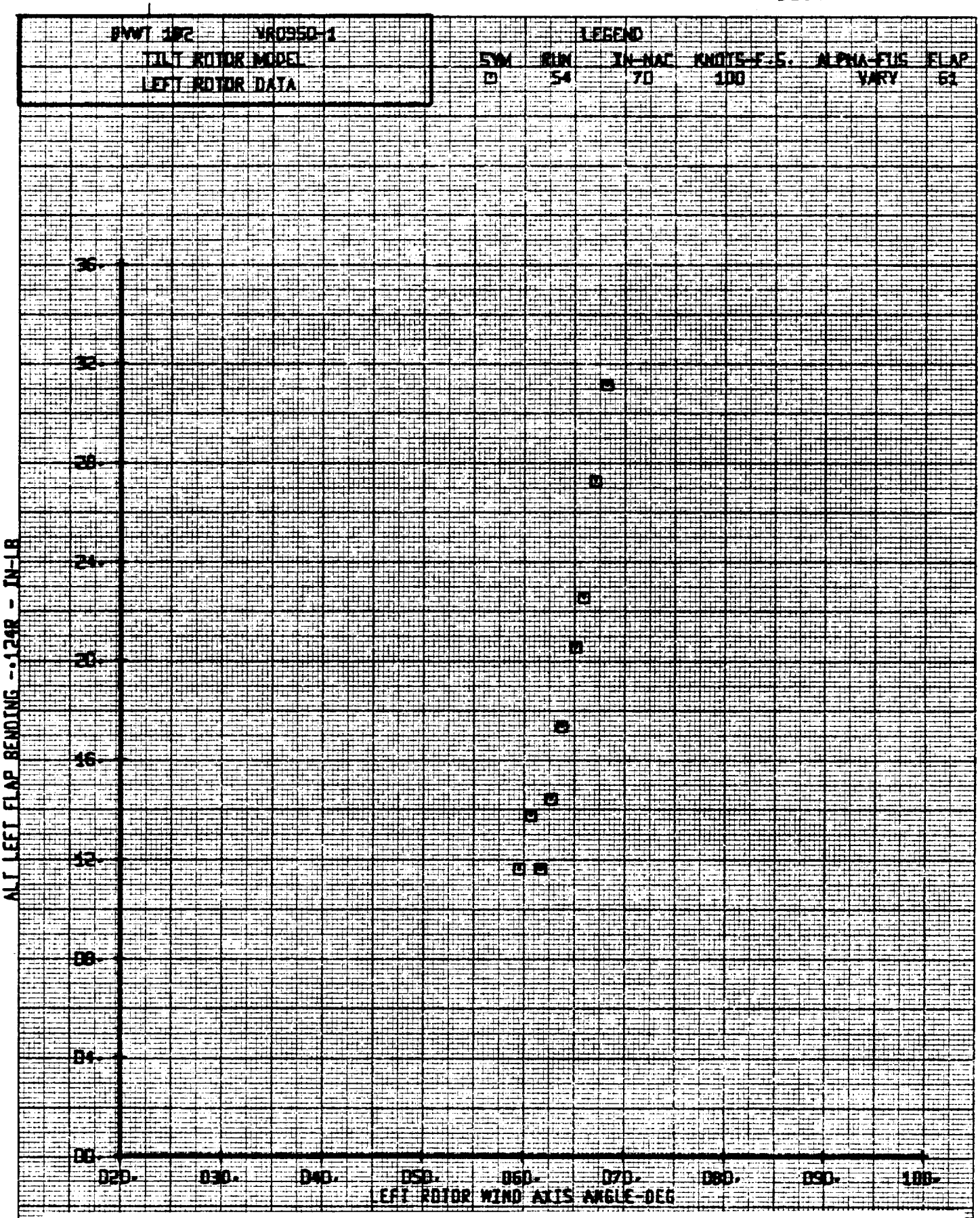


Fig. 5-020. Alt. Left Flap Bending Vs. Rotor Angle of Attack.

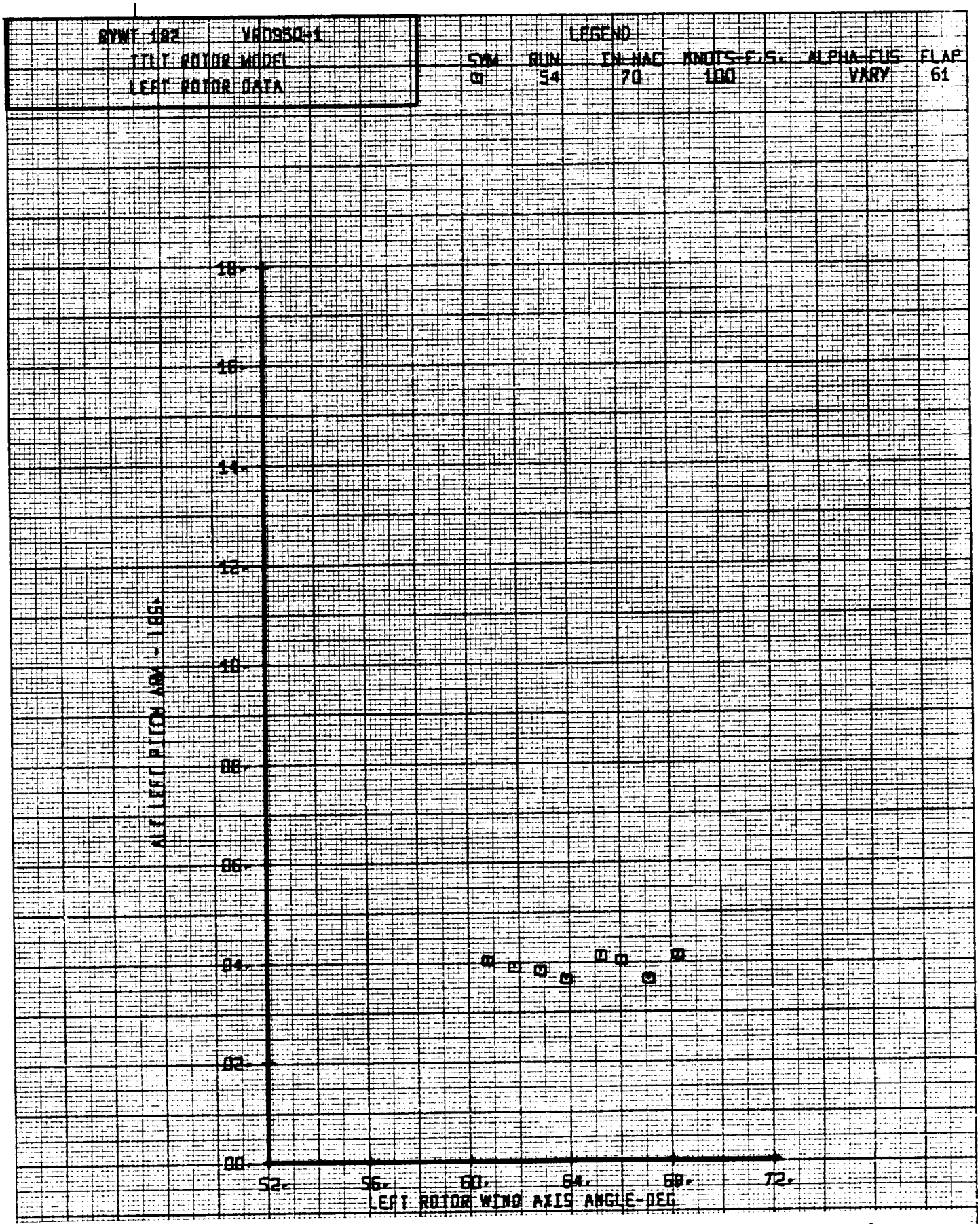


Fig. 5-021. Alt. Left Pitch Link Load Vs. Rotor Angle of Attack.

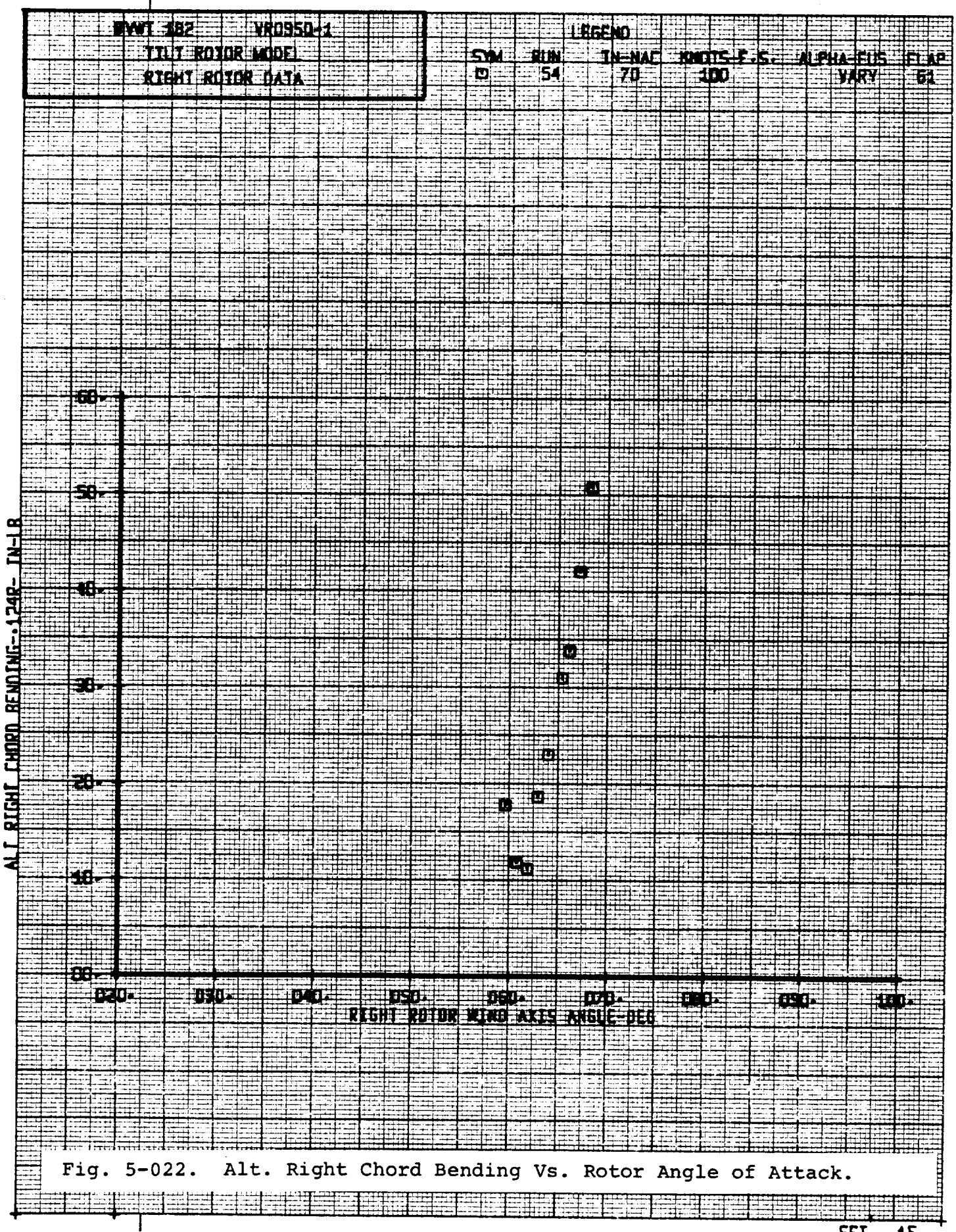


Fig. 5-022. Alt. Right Chord Bending Vs. Rotor Angle of Attack.

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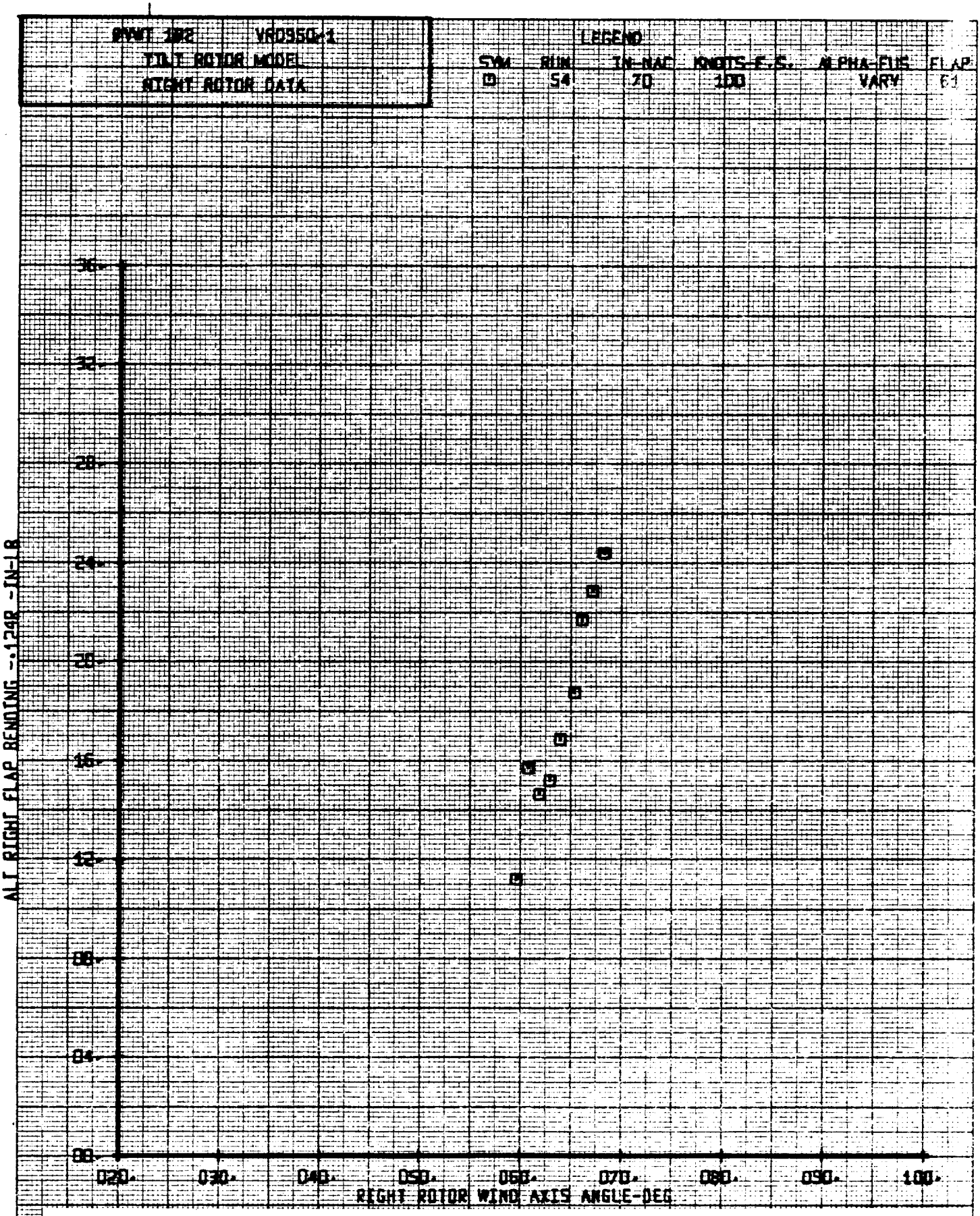


Fig. 5-023. Alt. Right Flap Bending Vs. Rotor Angle of Attack.

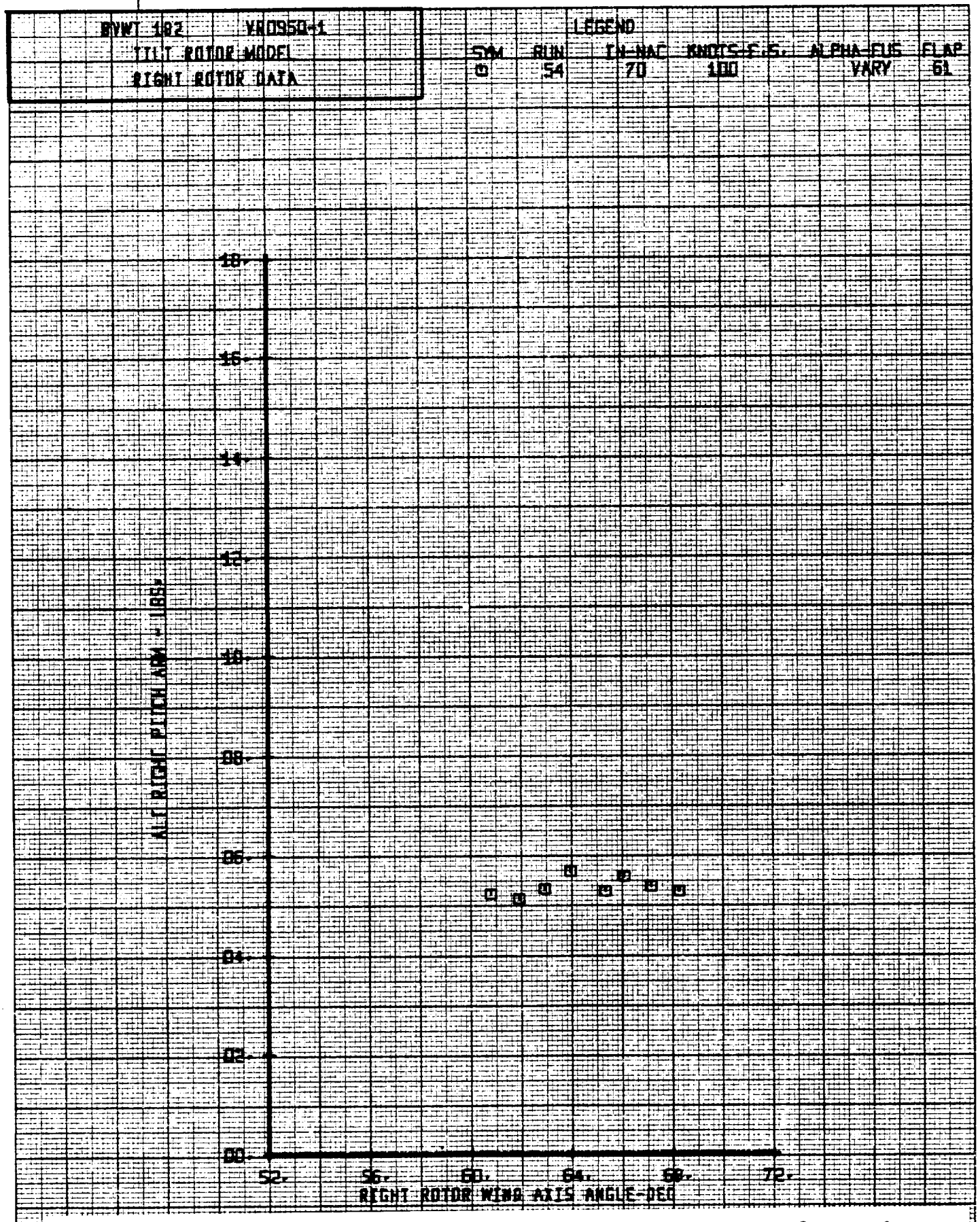


Fig. 5-024. Alt. Right Pitch Link Load Vs. Rotor Angle of Attack.

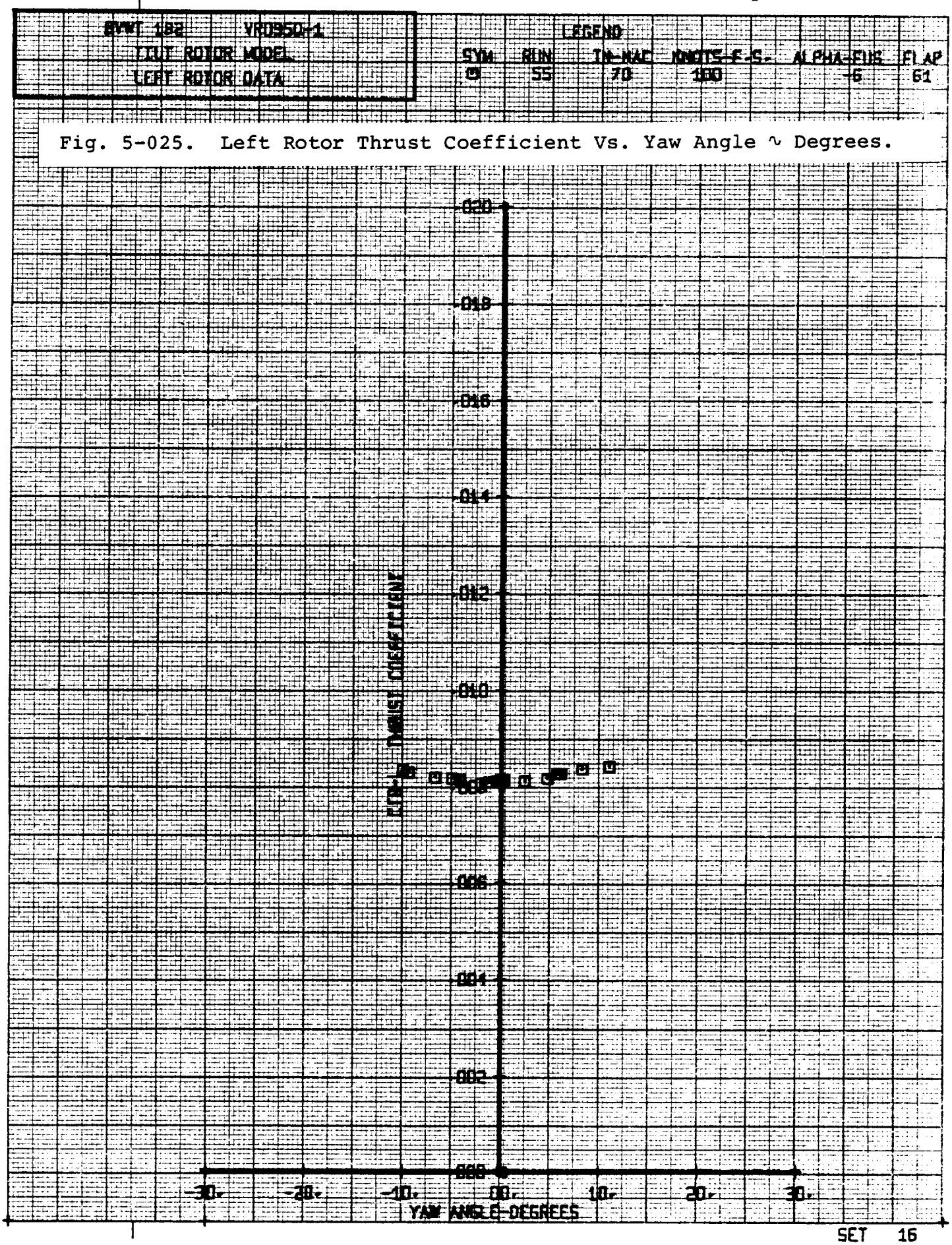


Fig. 5-025. Left Rotor Thrust Coefficient Vs. Yaw Angle ∿ Degrees.

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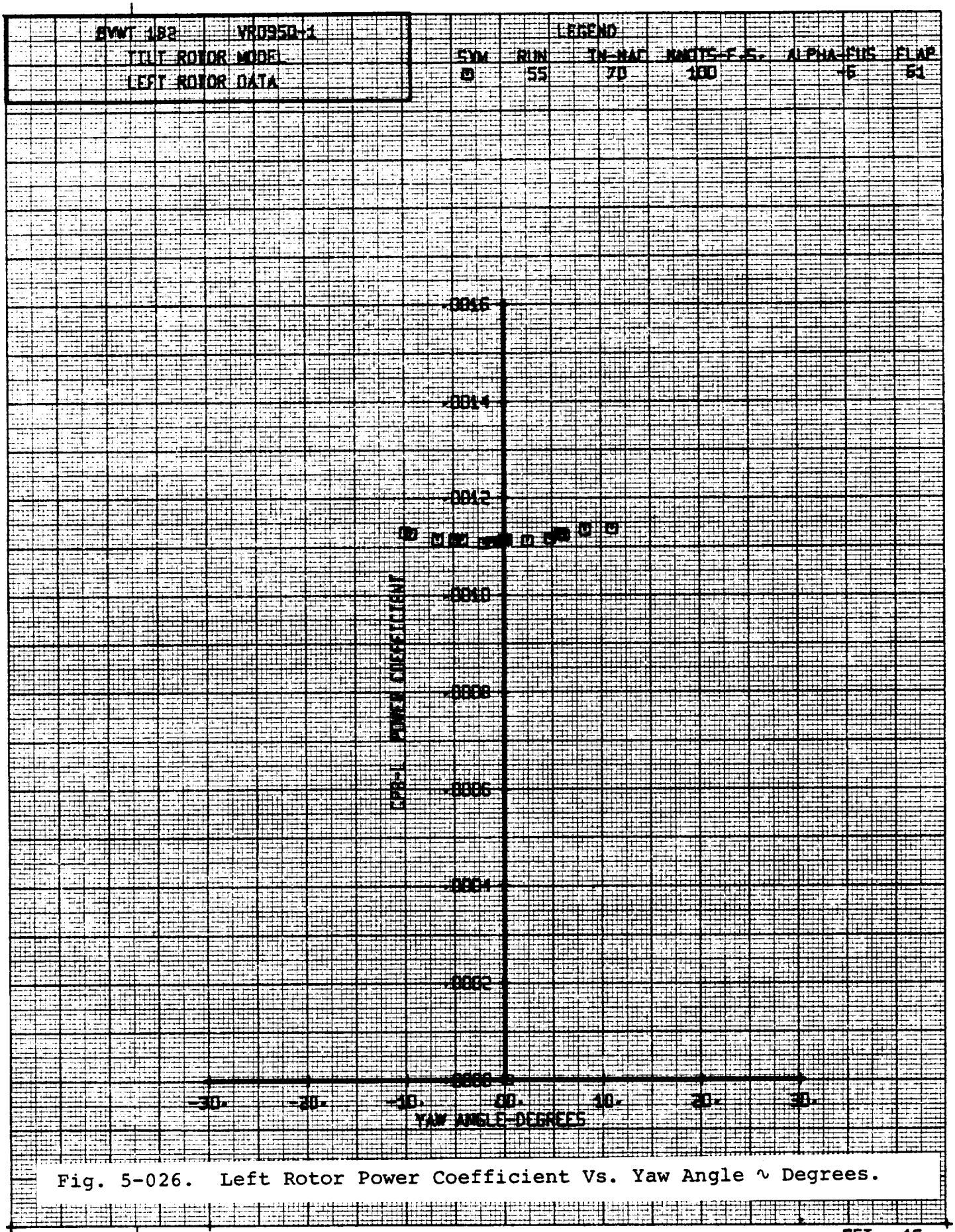


Fig. 5-026. Left Rotor Power Coefficient Vs. Yaw Angle ∿ Degrees.

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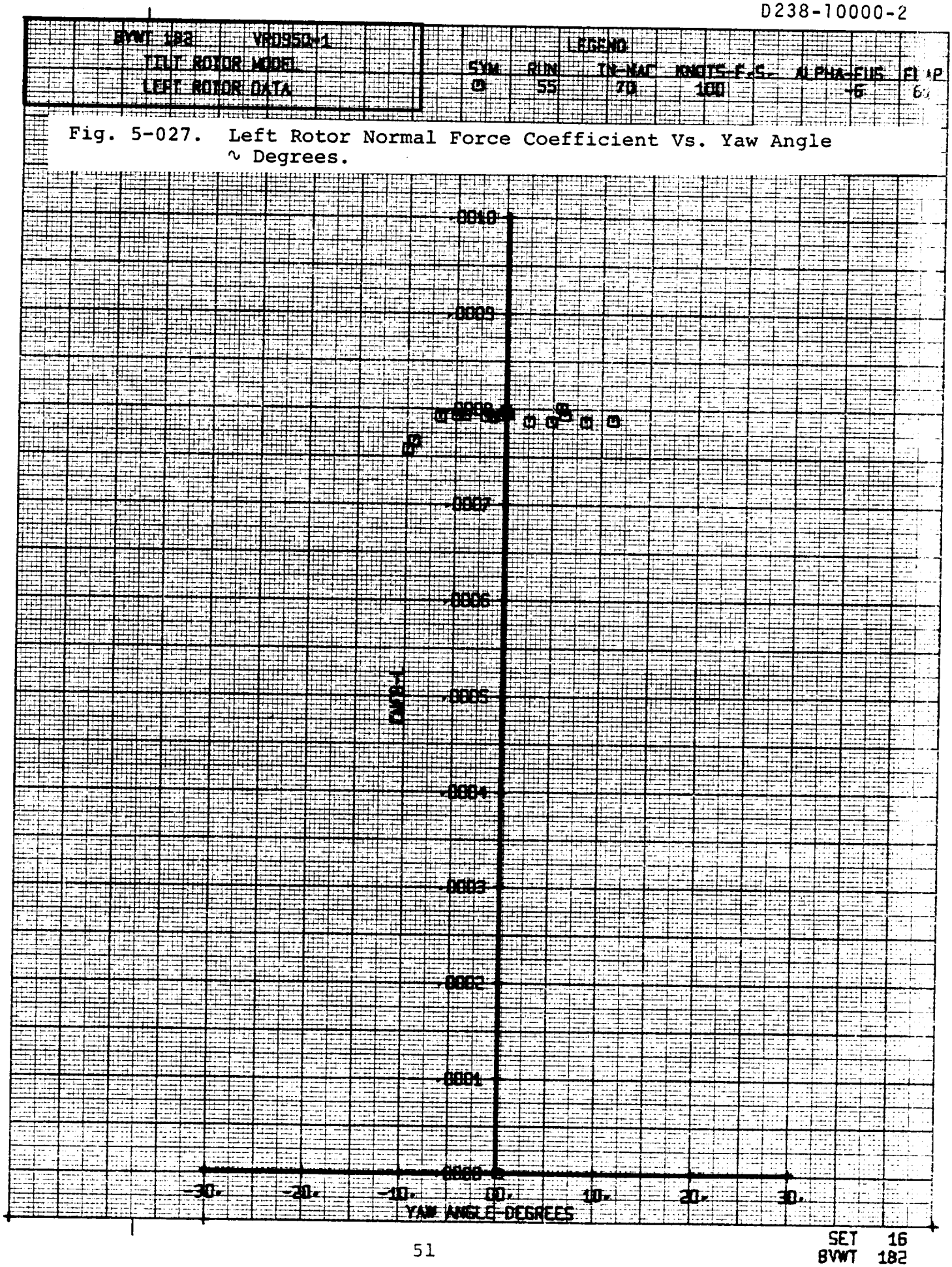


Fig. 5-027. Left Rotor Normal Force Coefficient Vs. Yaw Angle ∿ Degrees.

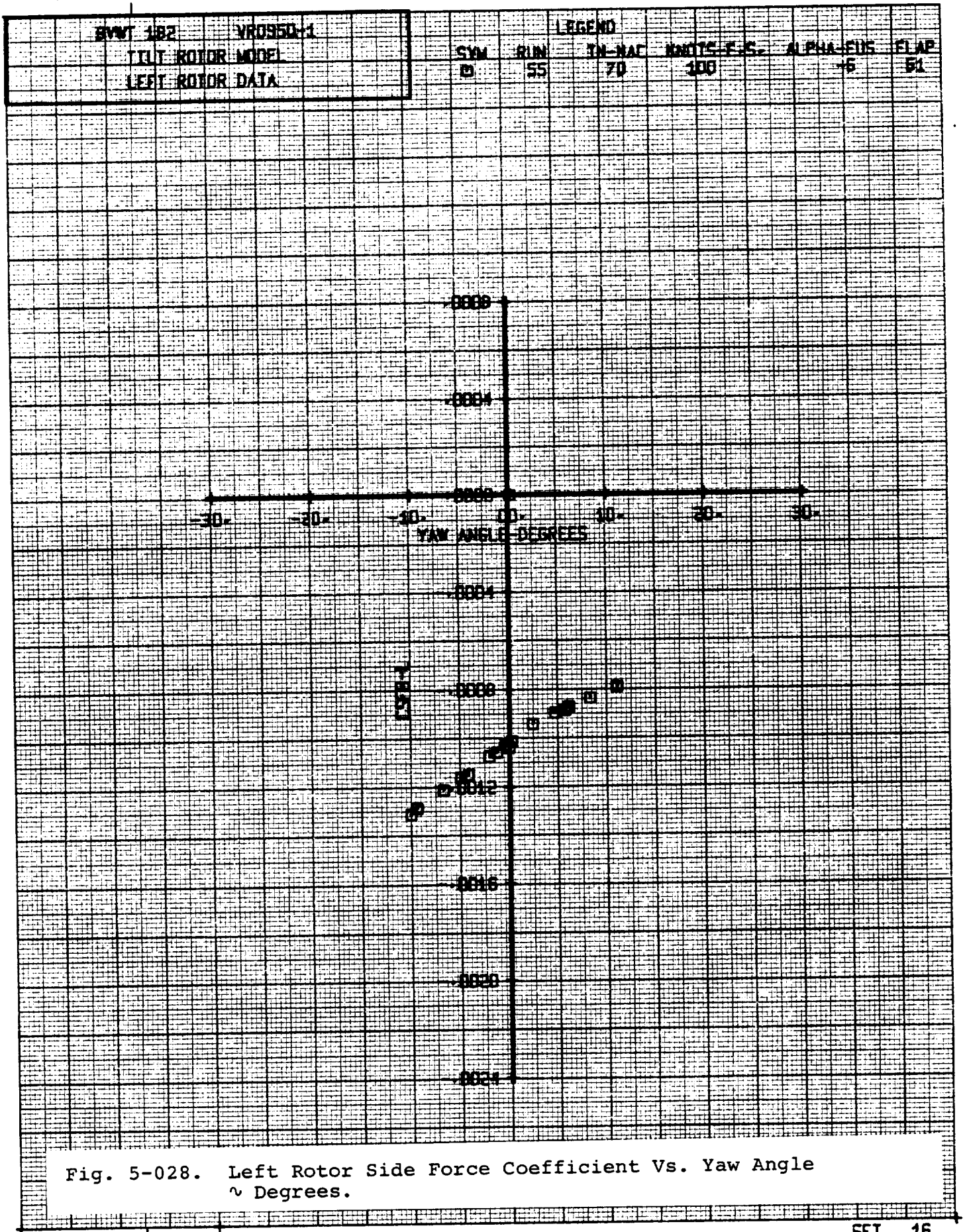


Fig. 5-028. Left Rotor Side Force Coefficient Vs. Yaw Angle ∿ Degrees.

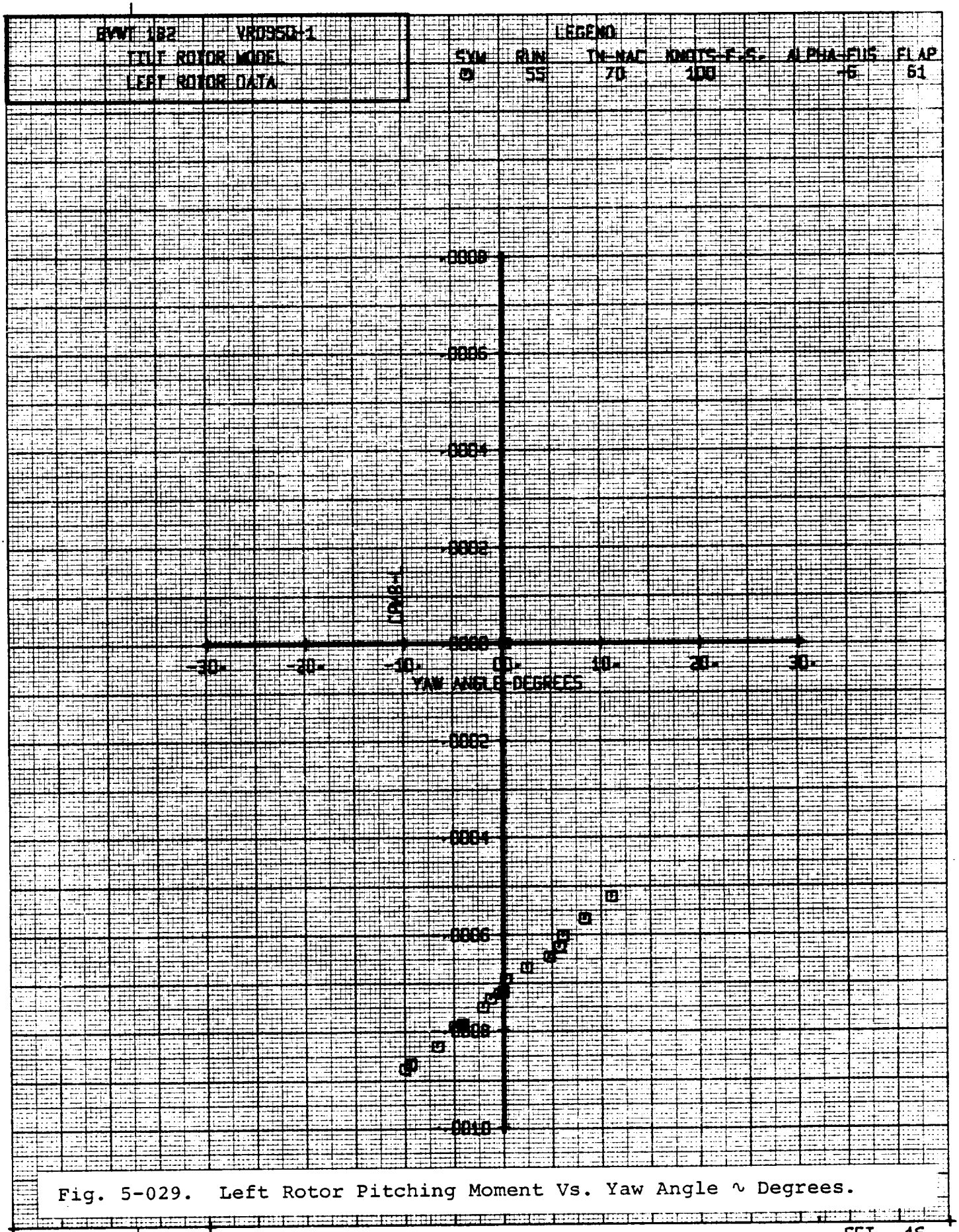


Fig. 5-029. Left Rotor Pitching Moment Vs. Yaw Angle ∿ Degrees.

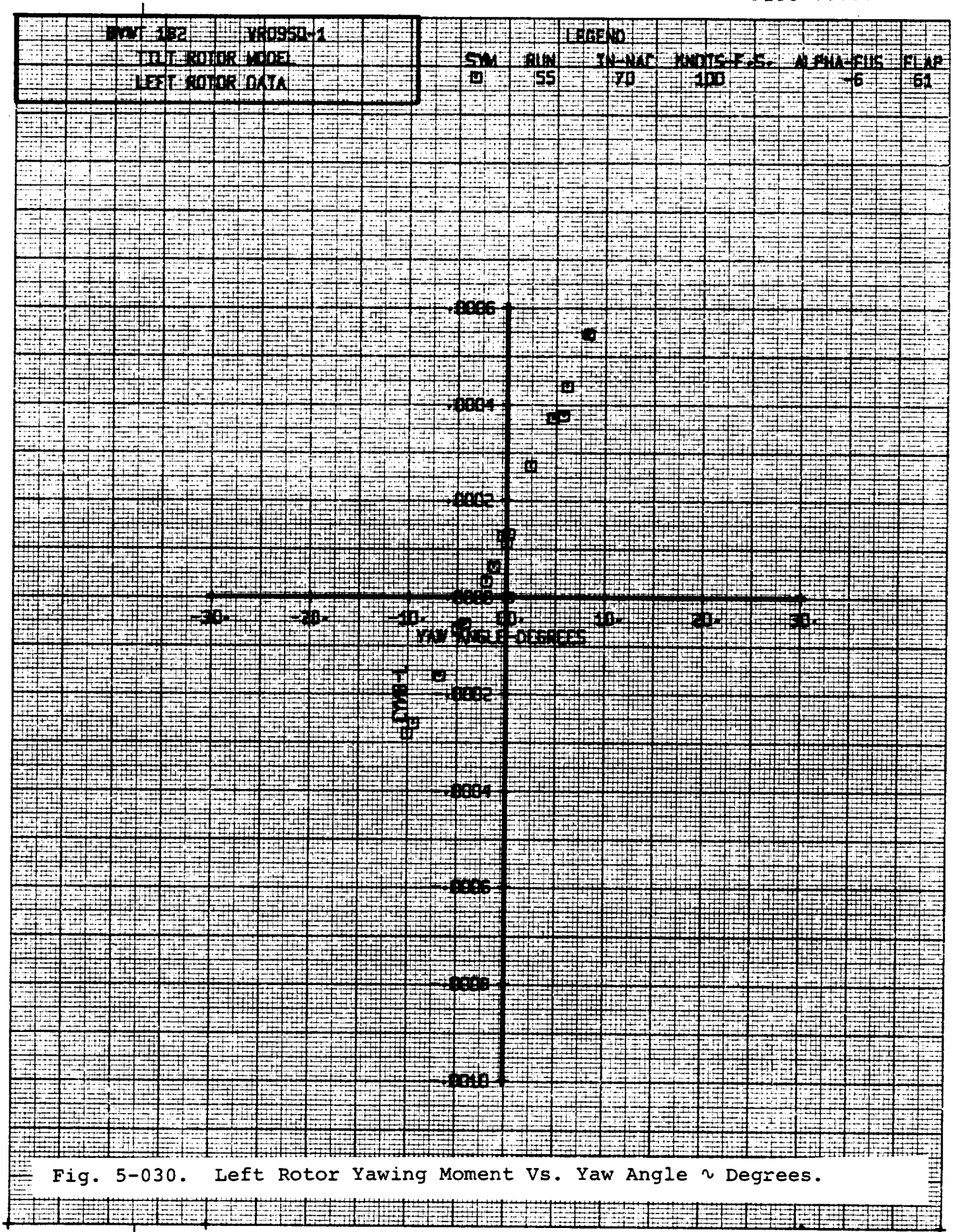


Fig. 5-030. Left Rotor Yawing Moment Vs. Yaw Angle ∿ Degrees.

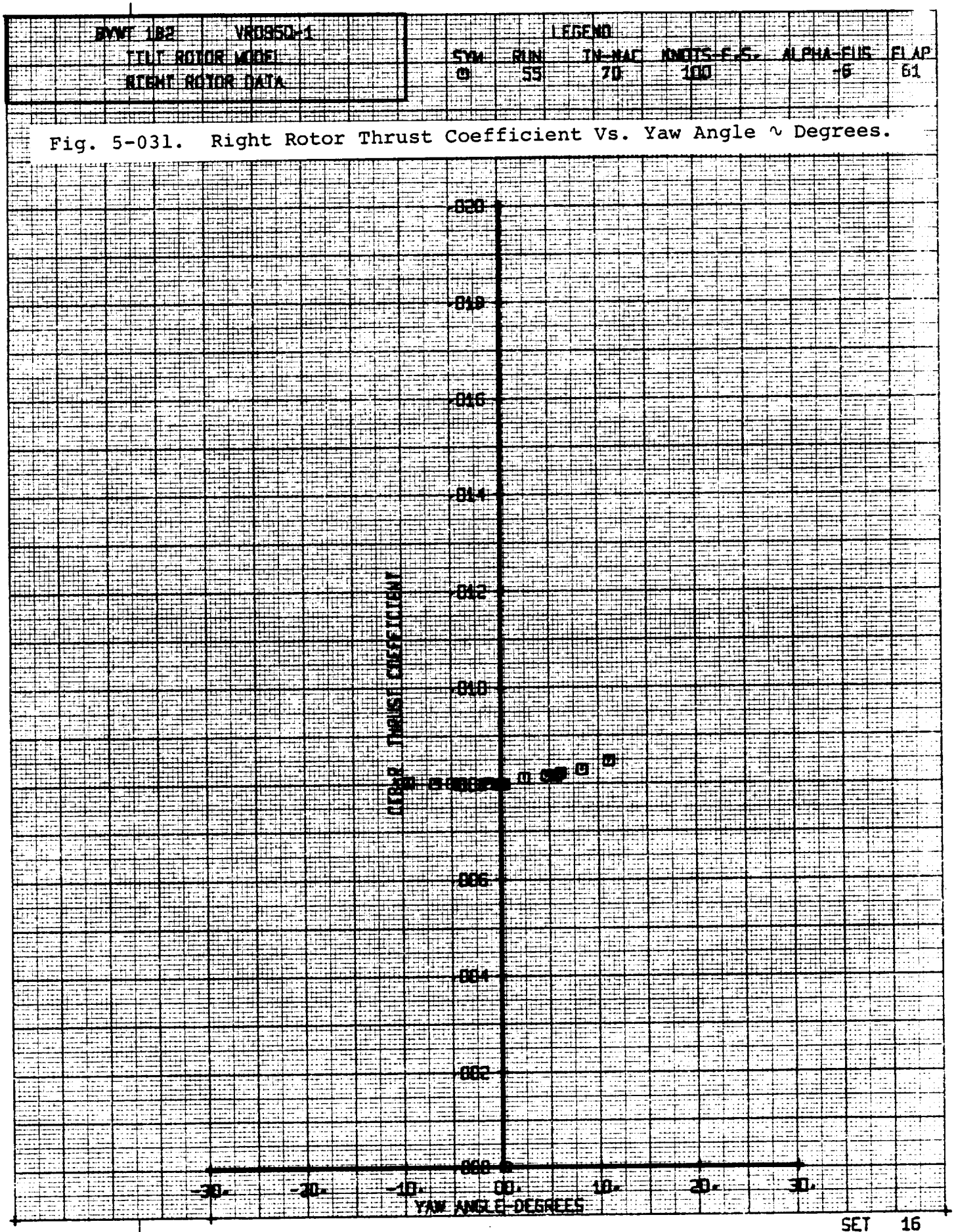


Fig. 5-031. Right Rotor Thrust Coefficient Vs. Yaw Angle ∿ Degrees.

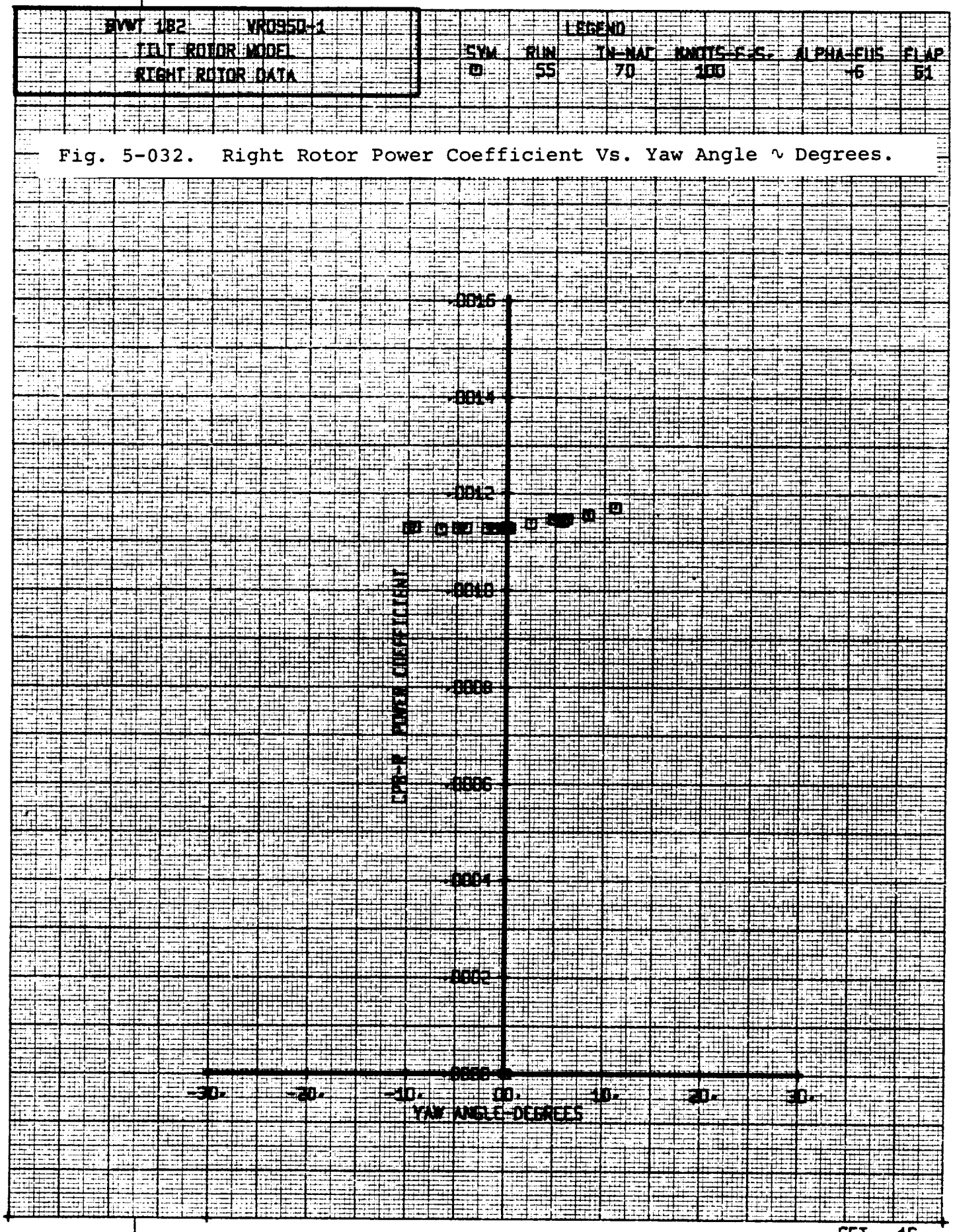


Fig. 5-032. Right Rotor Power Coefficient Vs. Yaw Angle ∿ Degrees.

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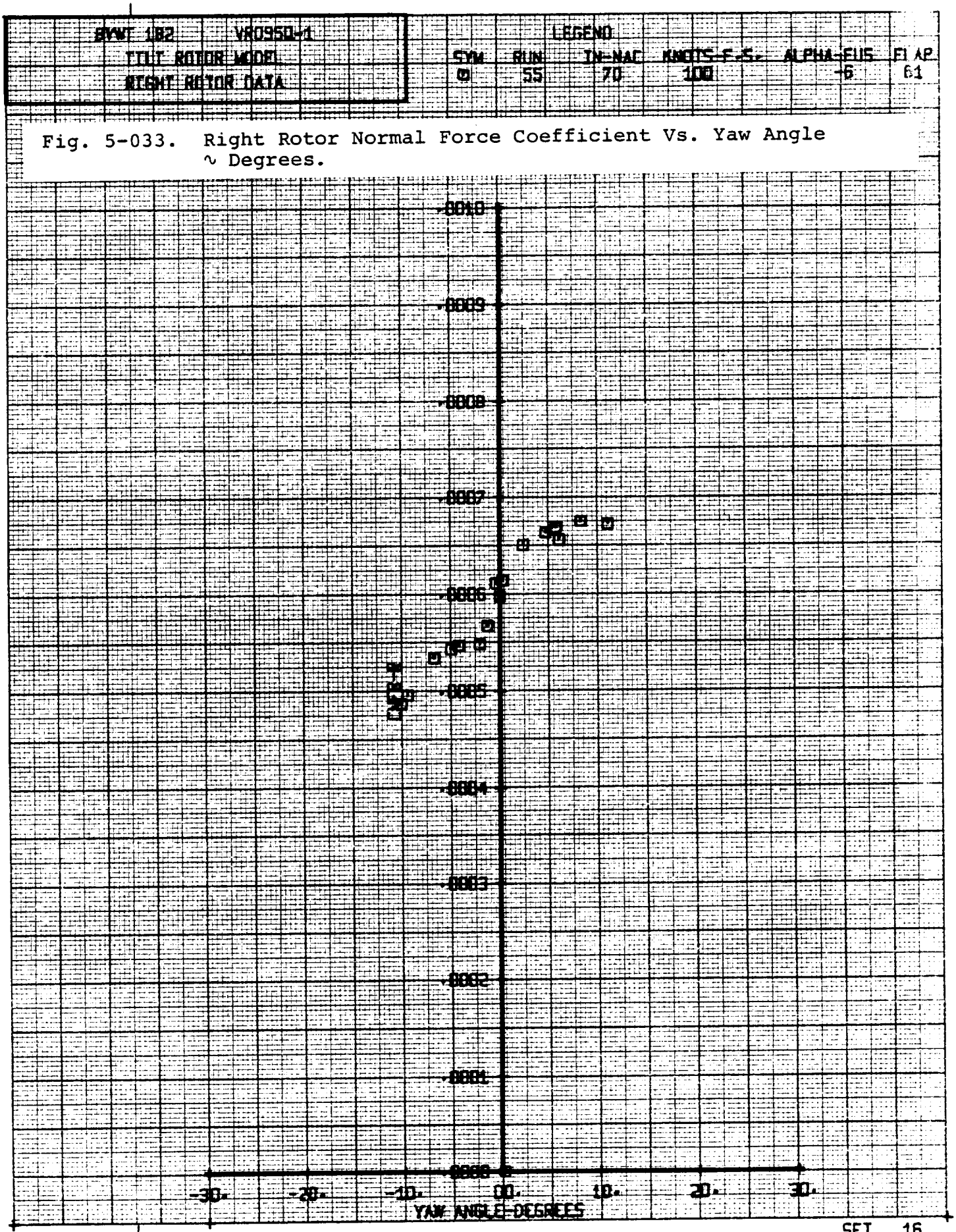


Fig. 5-033. Right Rotor Normal Force Coefficient Vs. Yaw Angle ∿ Degrees.

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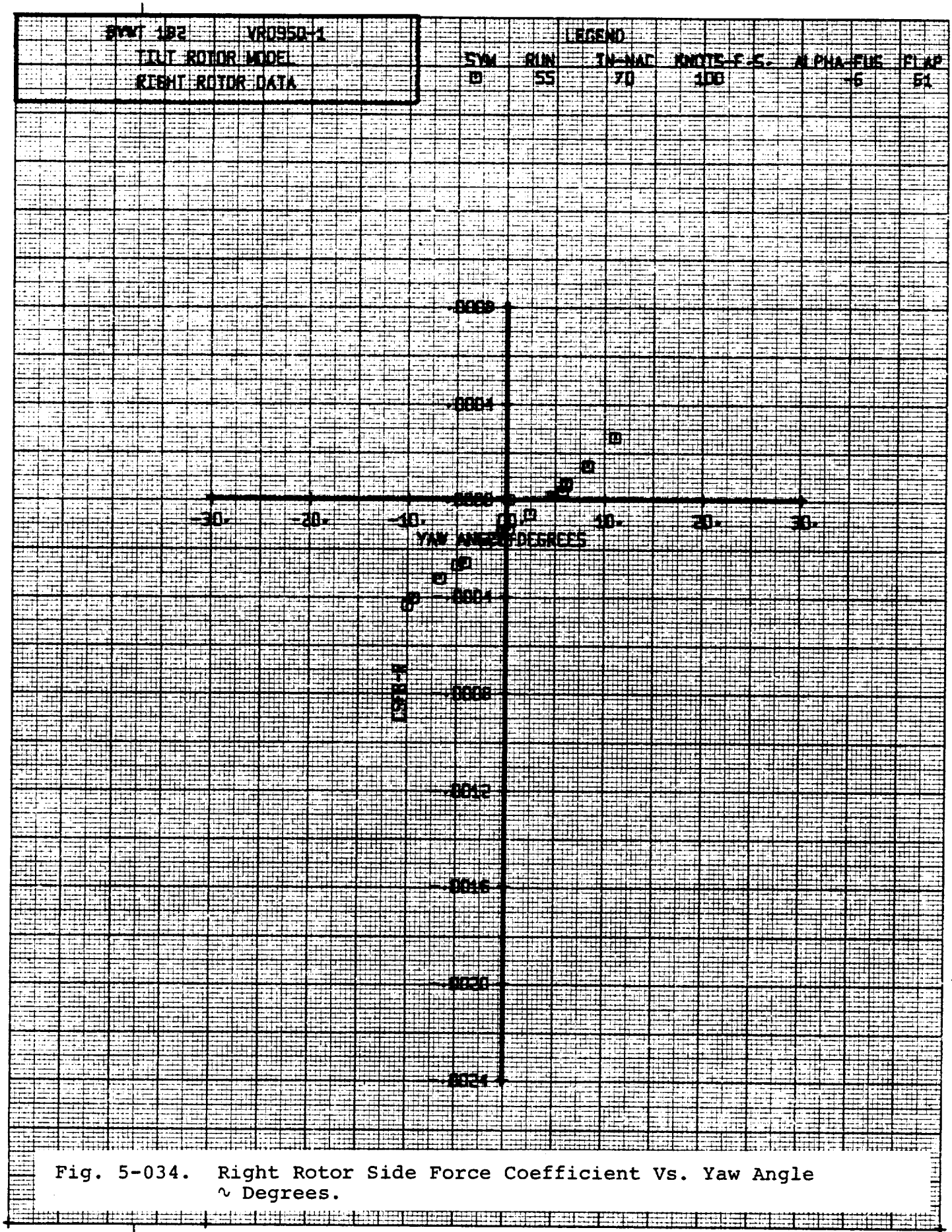


Fig. 5-034. Right Rotor Side Force Coefficient Vs. Yaw Angle ∿ Degrees.

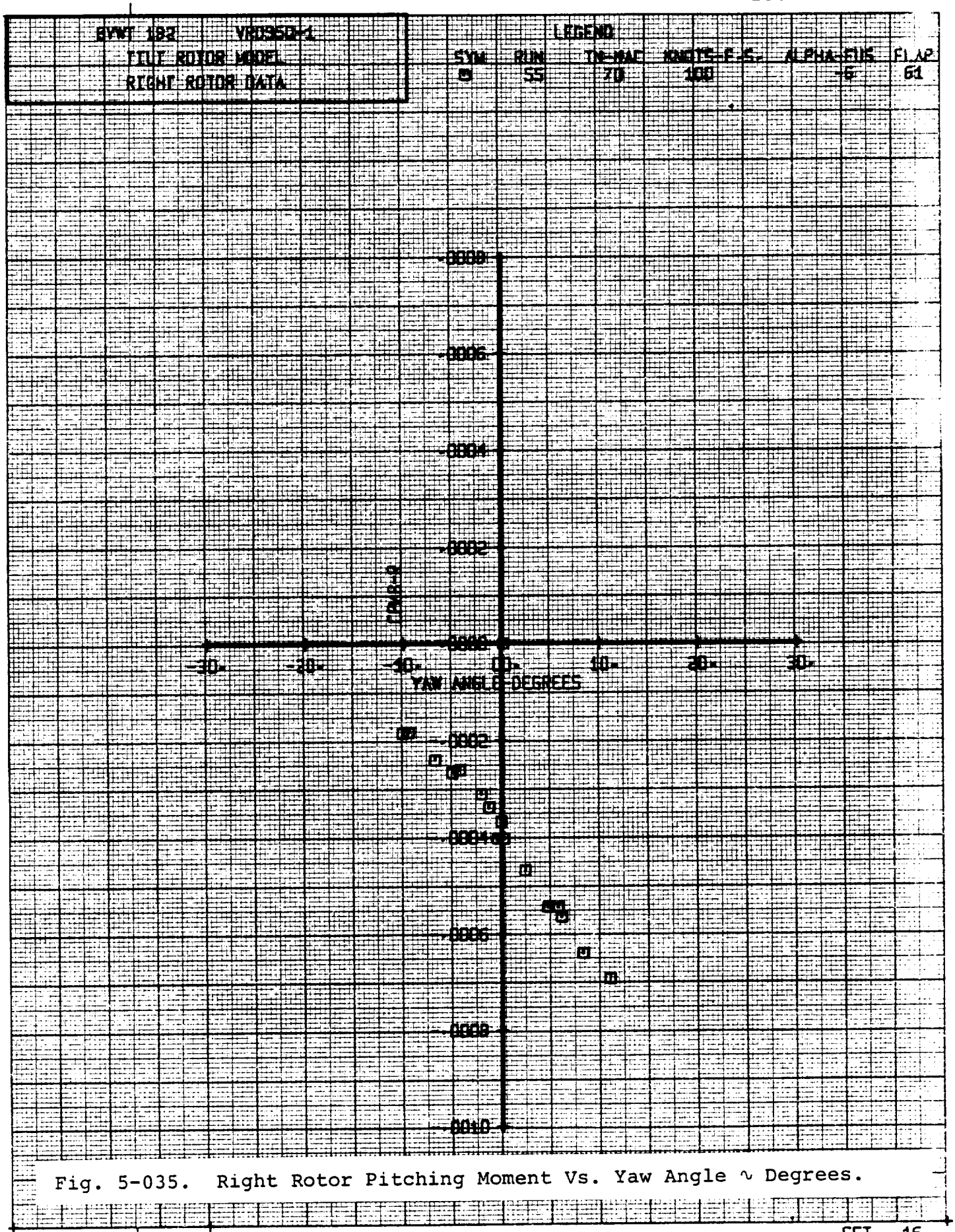


Fig. 5-035. Right Rotor Pitching Moment Vs. Yaw Angle ∿ Degrees.

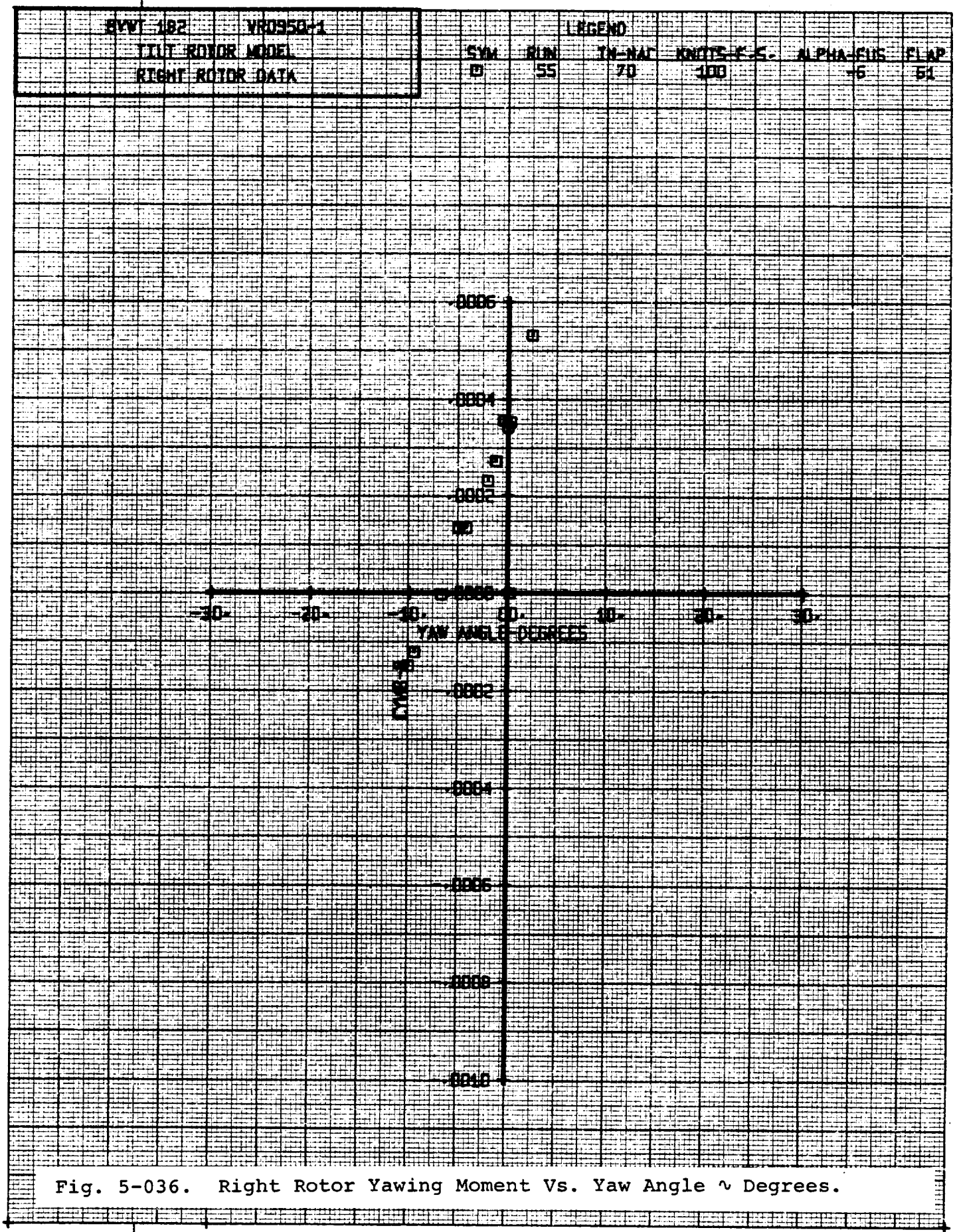


Fig. 5-036. Right Rotor Yawing Moment Vs. Yaw Angle ∿ Degrees.

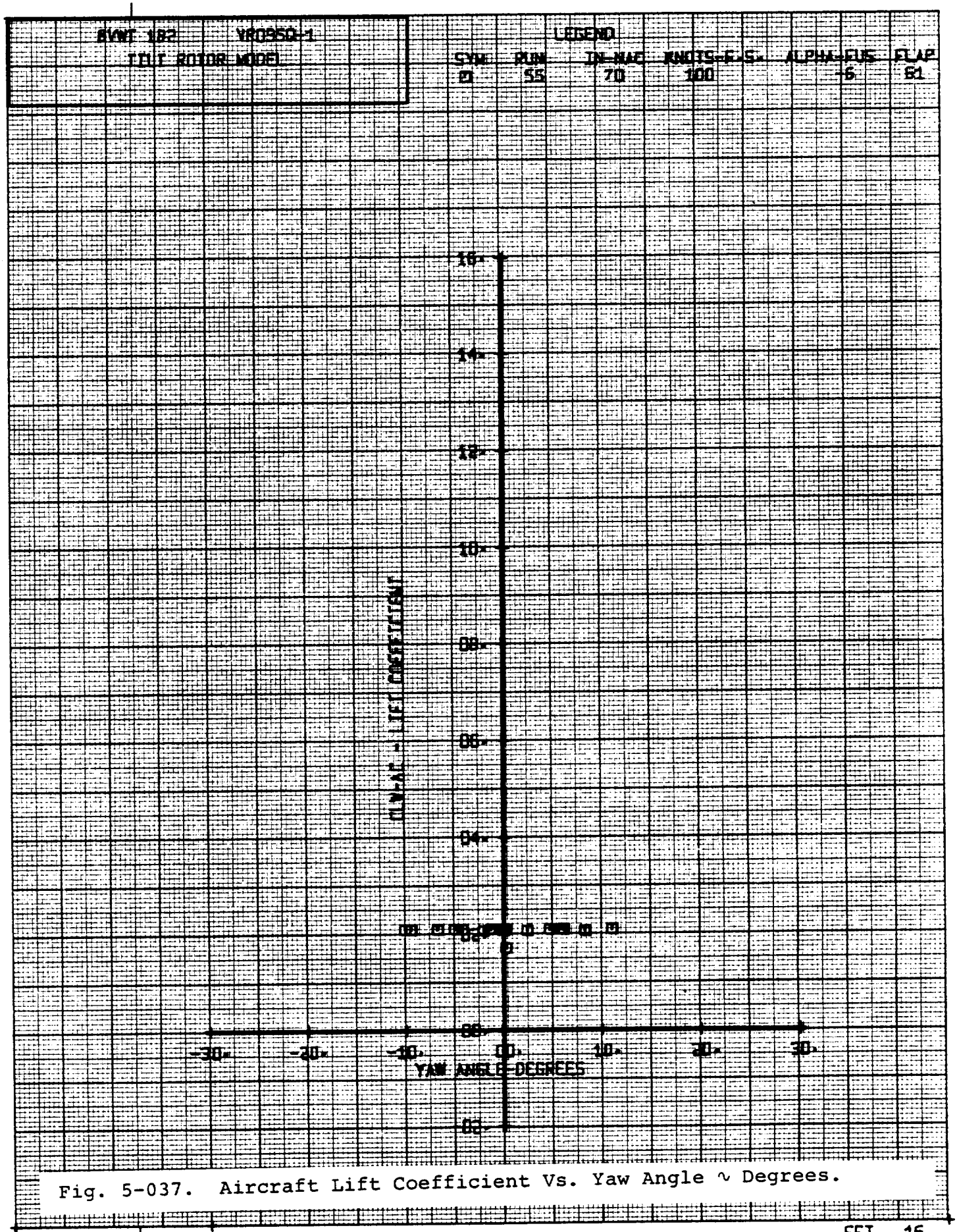


Fig. 5-037. Aircraft Lift Coefficient Vs. Yaw Angle ∿ Degrees.

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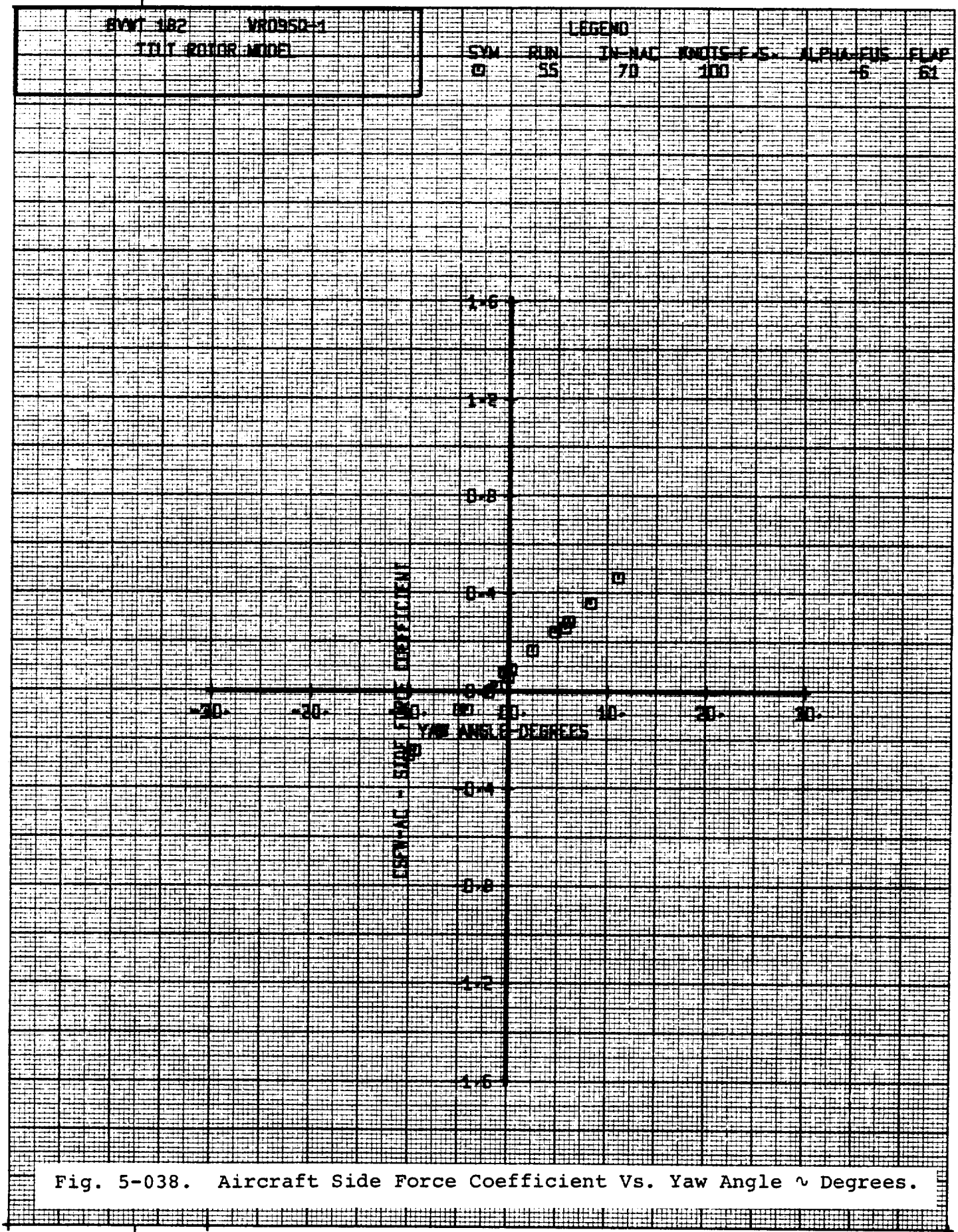


Fig. 5-038. Aircraft Side Force Coefficient Vs. Yaw Angle ∿ Degrees.

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BWT 182

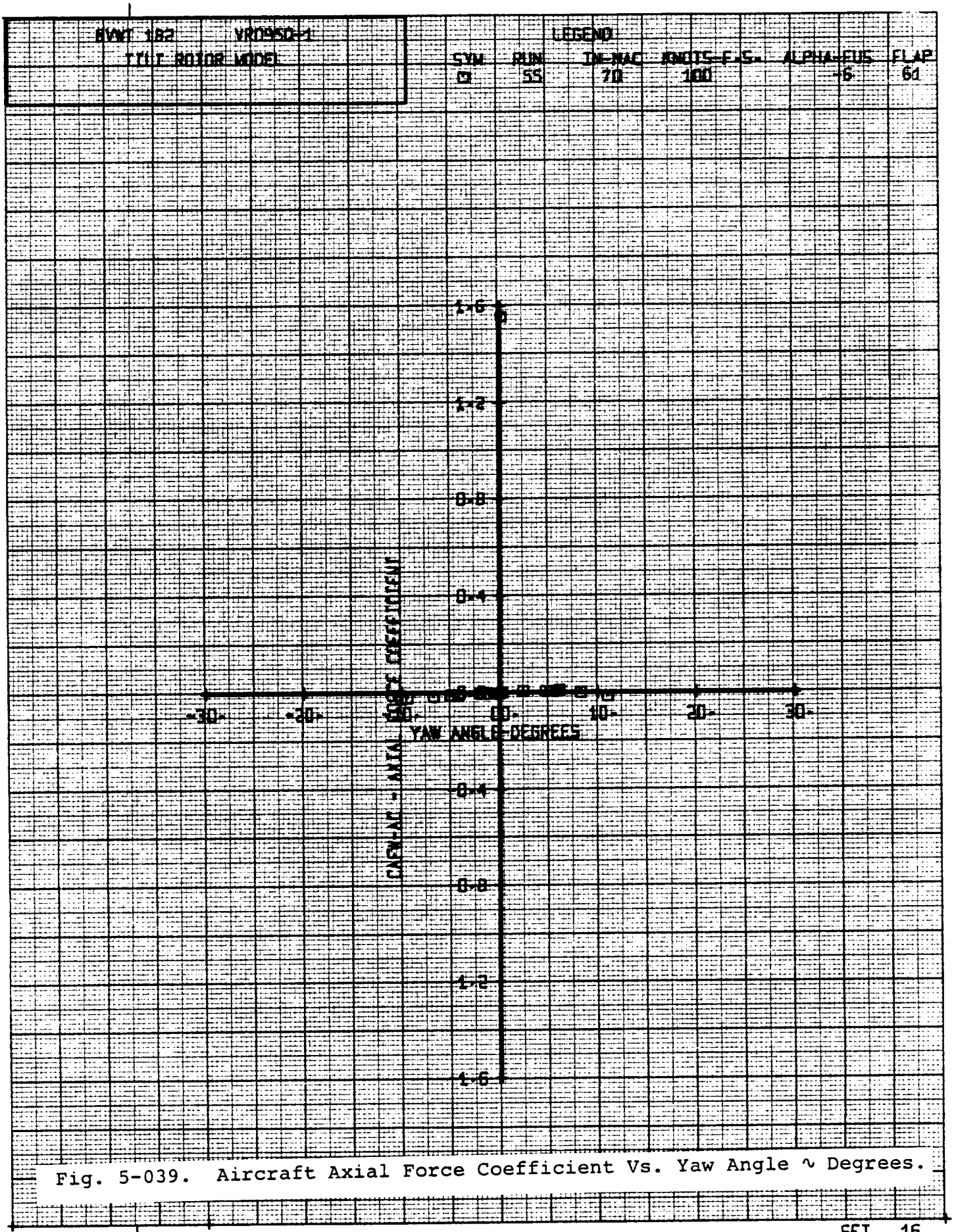


Fig. 5-039. Aircraft Axial Force Coefficient Vs. Yaw Angle ∿ Degrees.

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BVWT 182

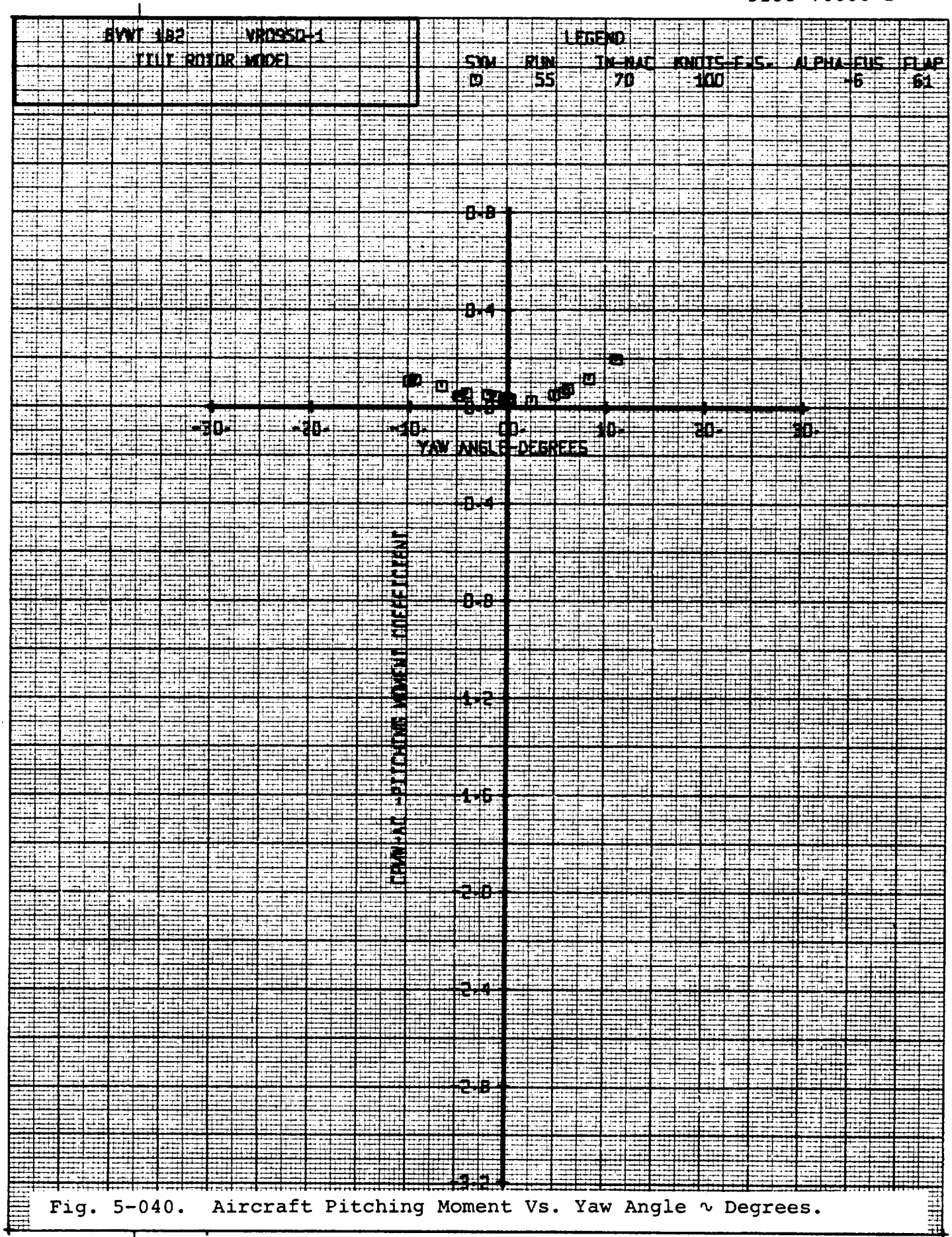


Fig. 5-040. Aircraft Pitching Moment Vs. Yaw Angle ∿ Degrees.

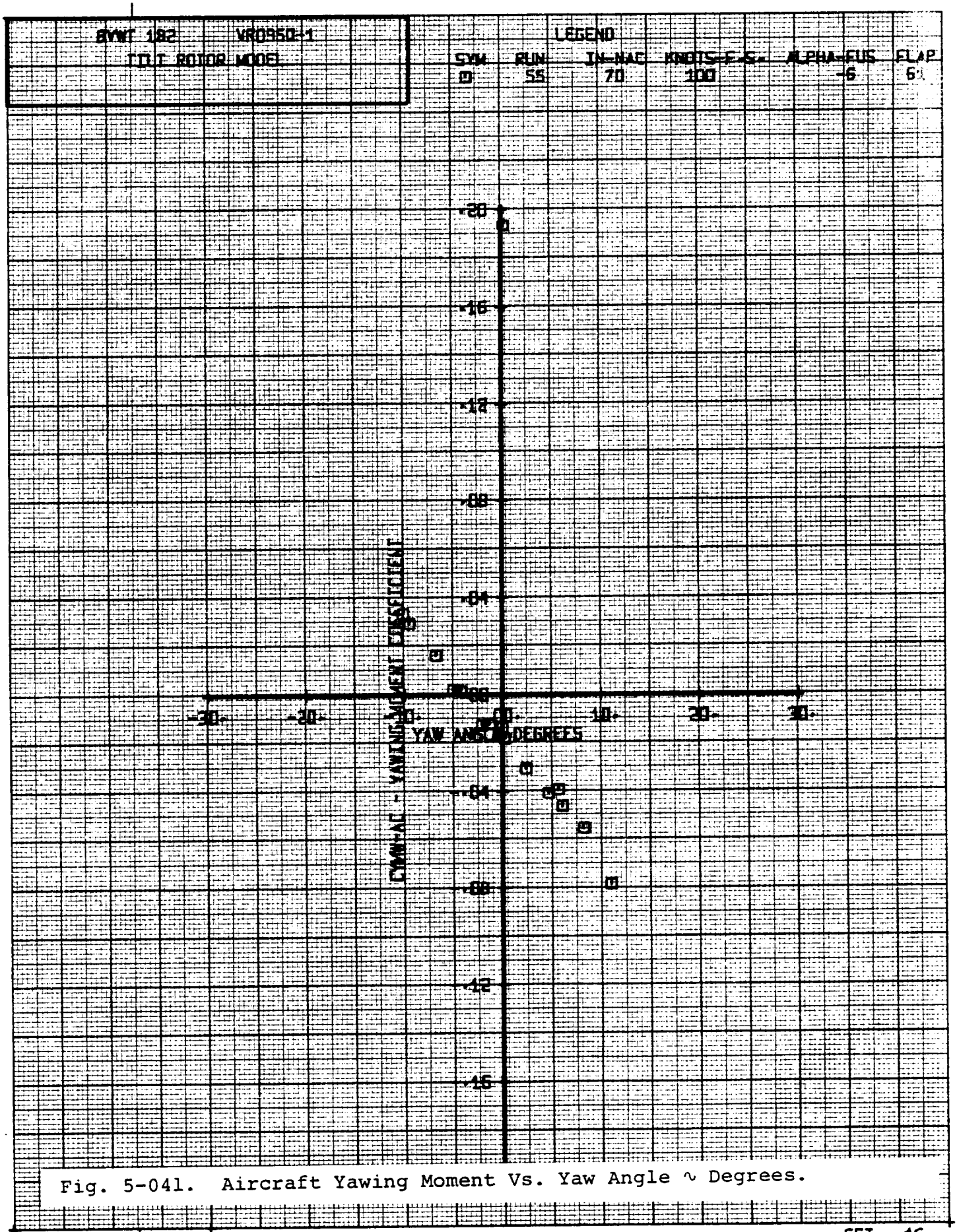


Fig. 5-041. Aircraft Yawing Moment Vs. Yaw Angle ∿ Degrees.

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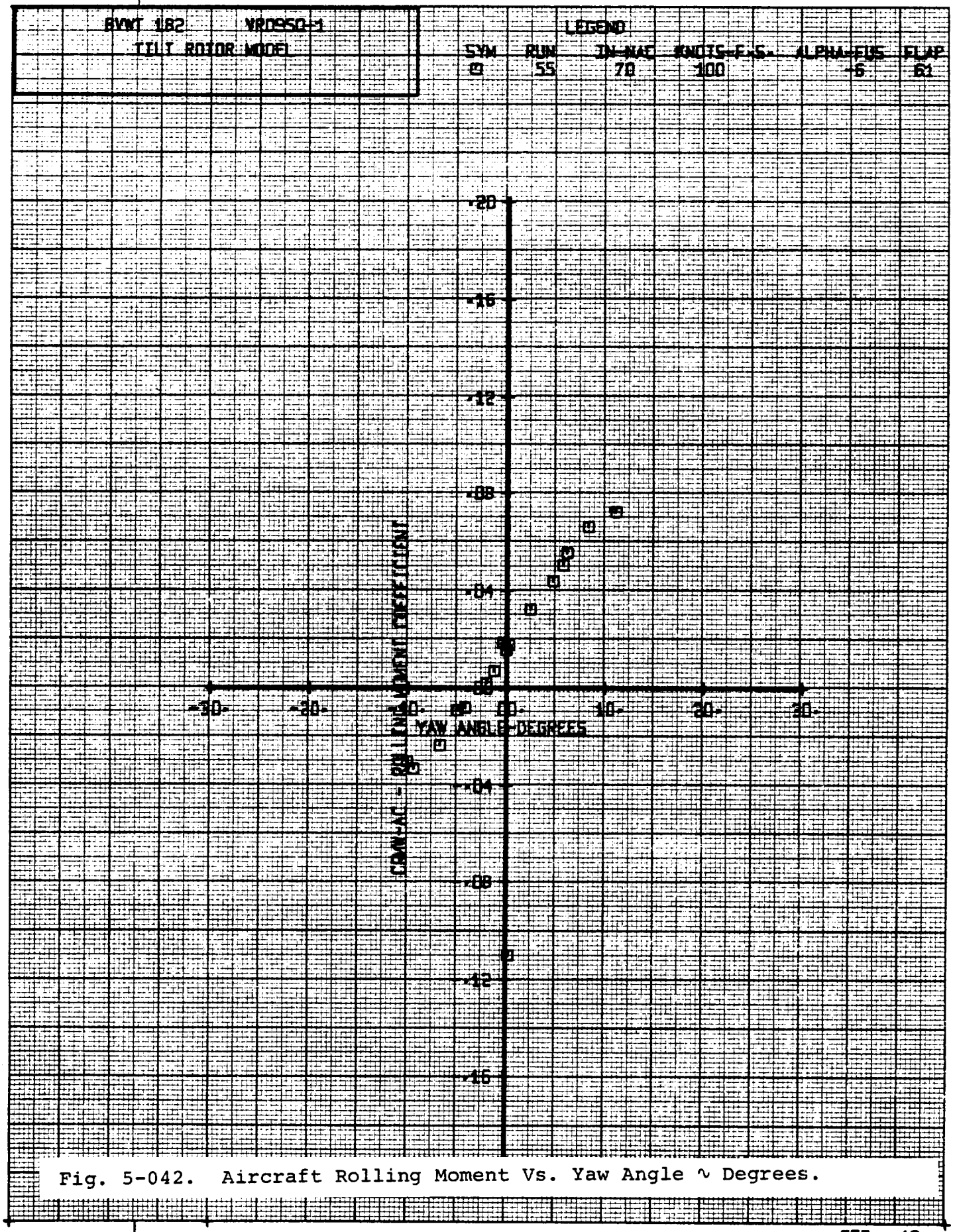


Fig. 5-042. Aircraft Rolling Moment Vs. Yaw Angle ∿ Degrees.

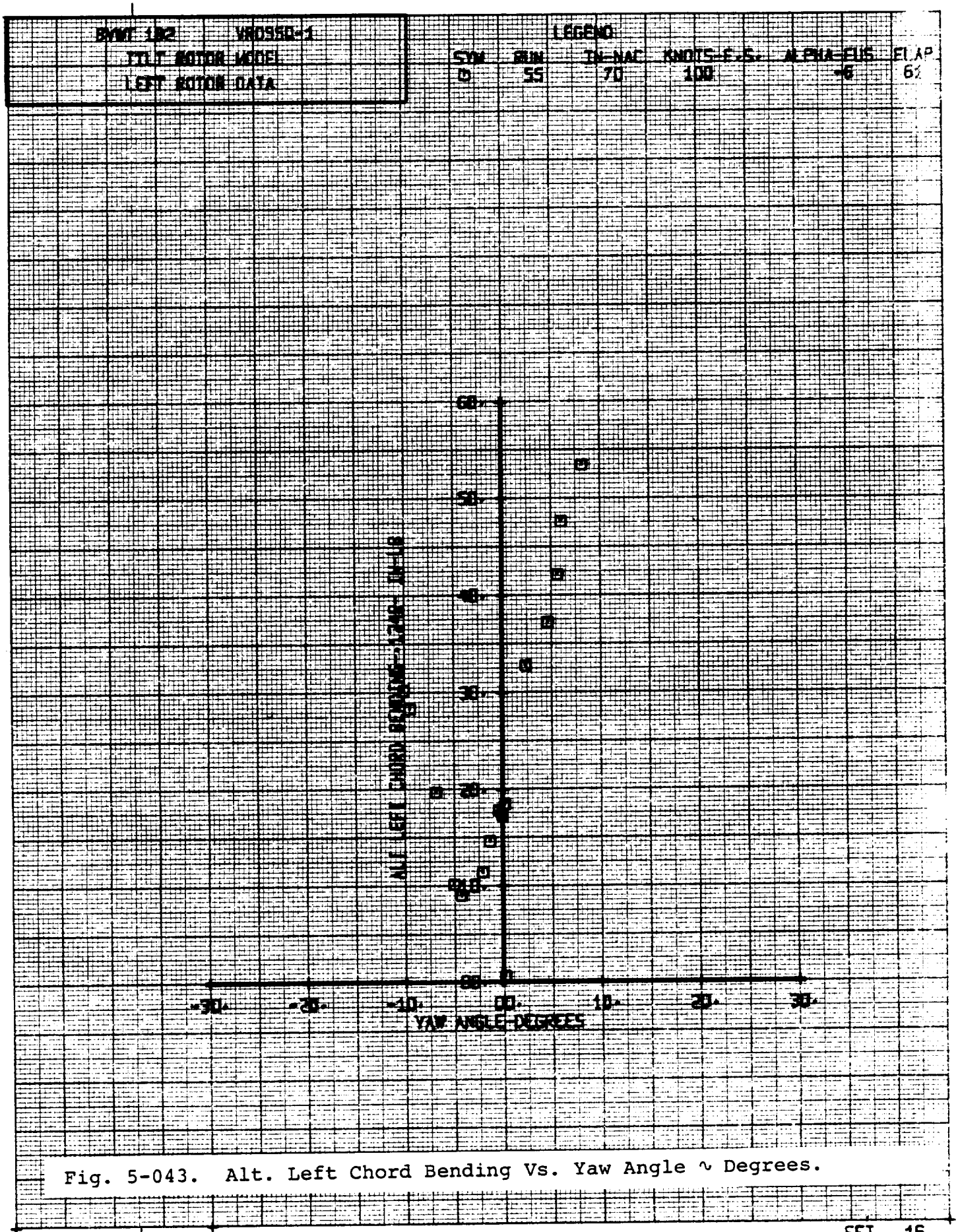


Fig. 5-043. Alt. Left Chord Bending Vs. Yaw Angle ∿ Degrees.

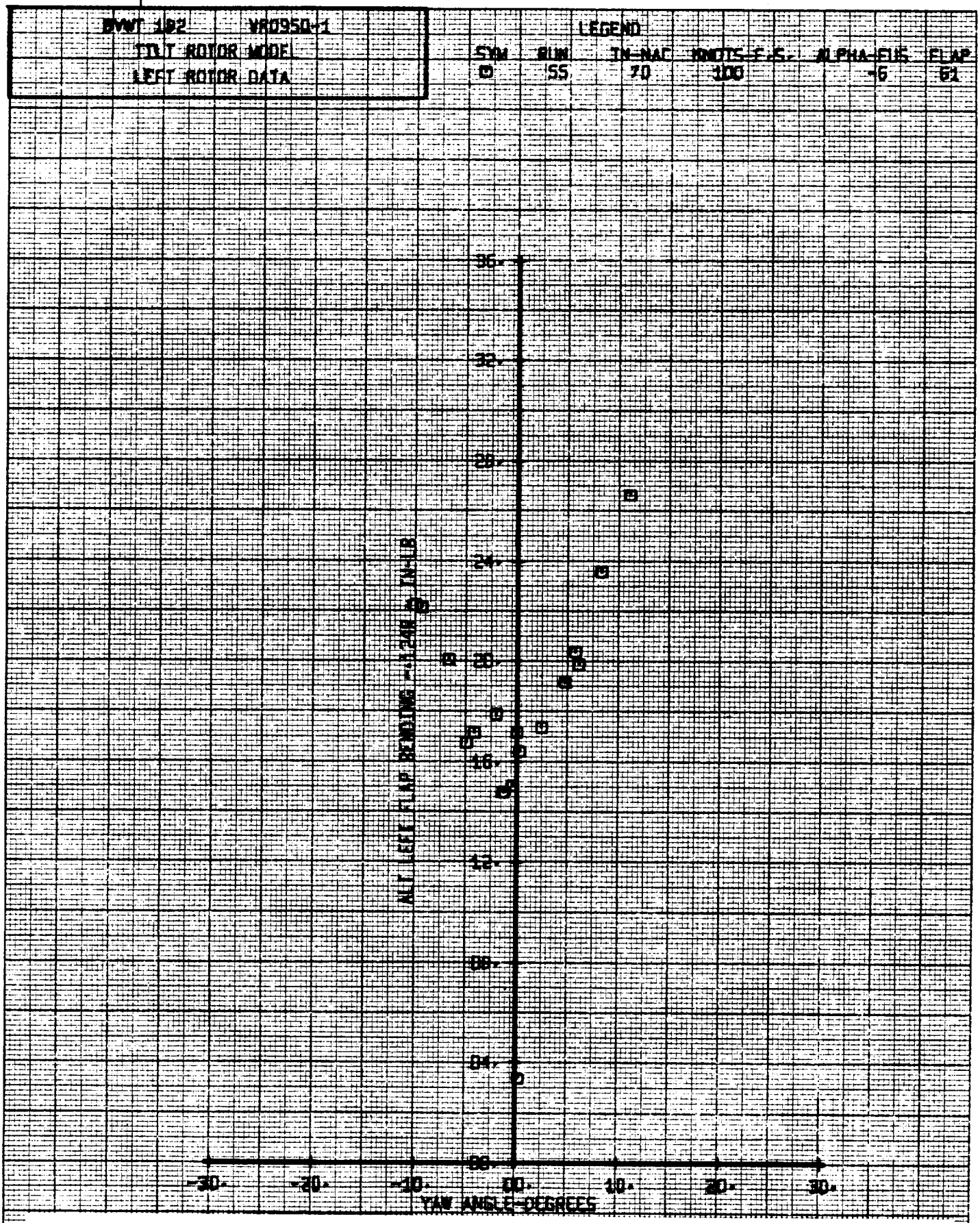


Fig. 5-044. Alt. Left Flap Bending Vs. Yaw Angle ∿ Degrees.

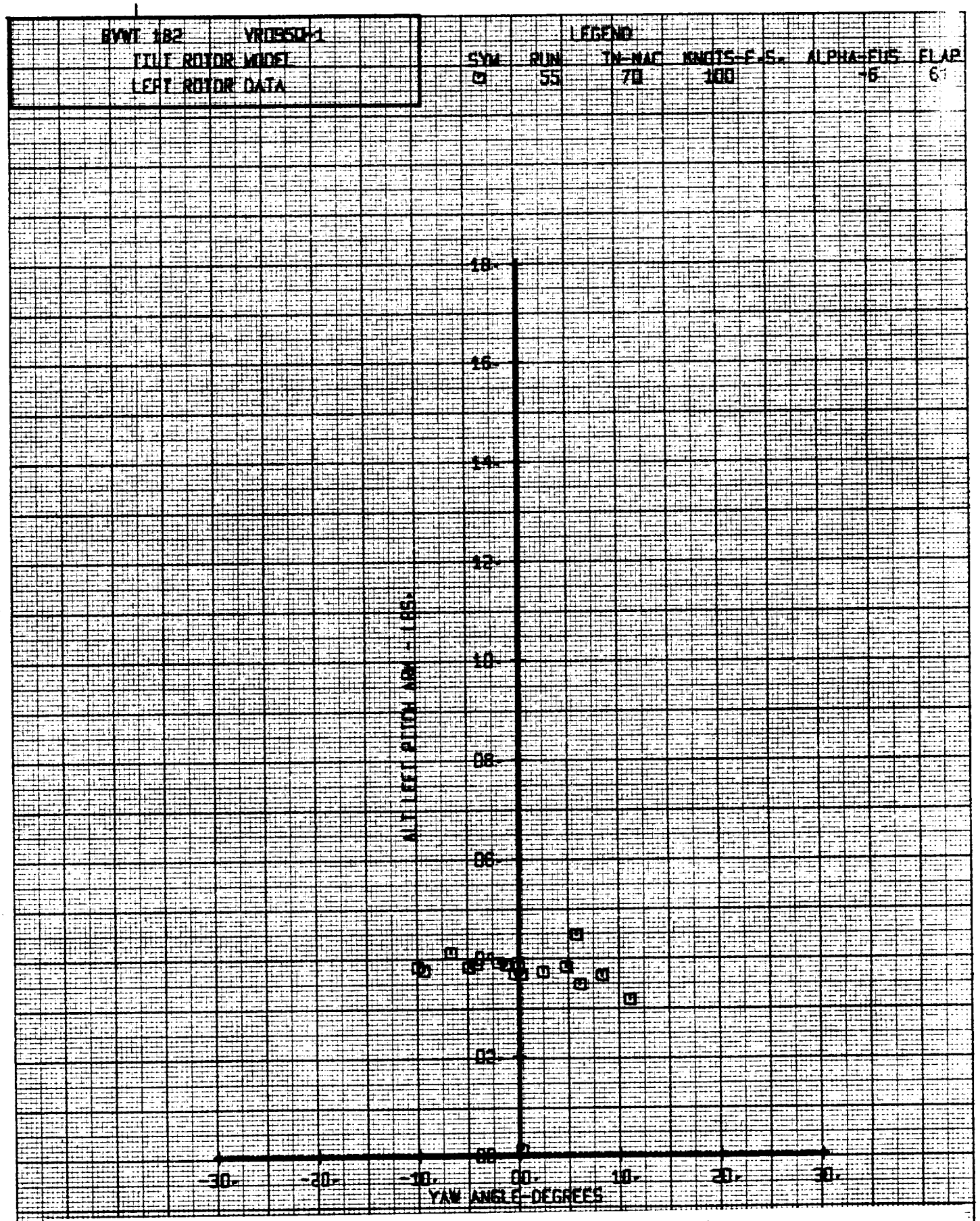


Fig. 5-045. Alt. Left Pitch Link Load Vs. Yaw Angle ∿ Degrees.

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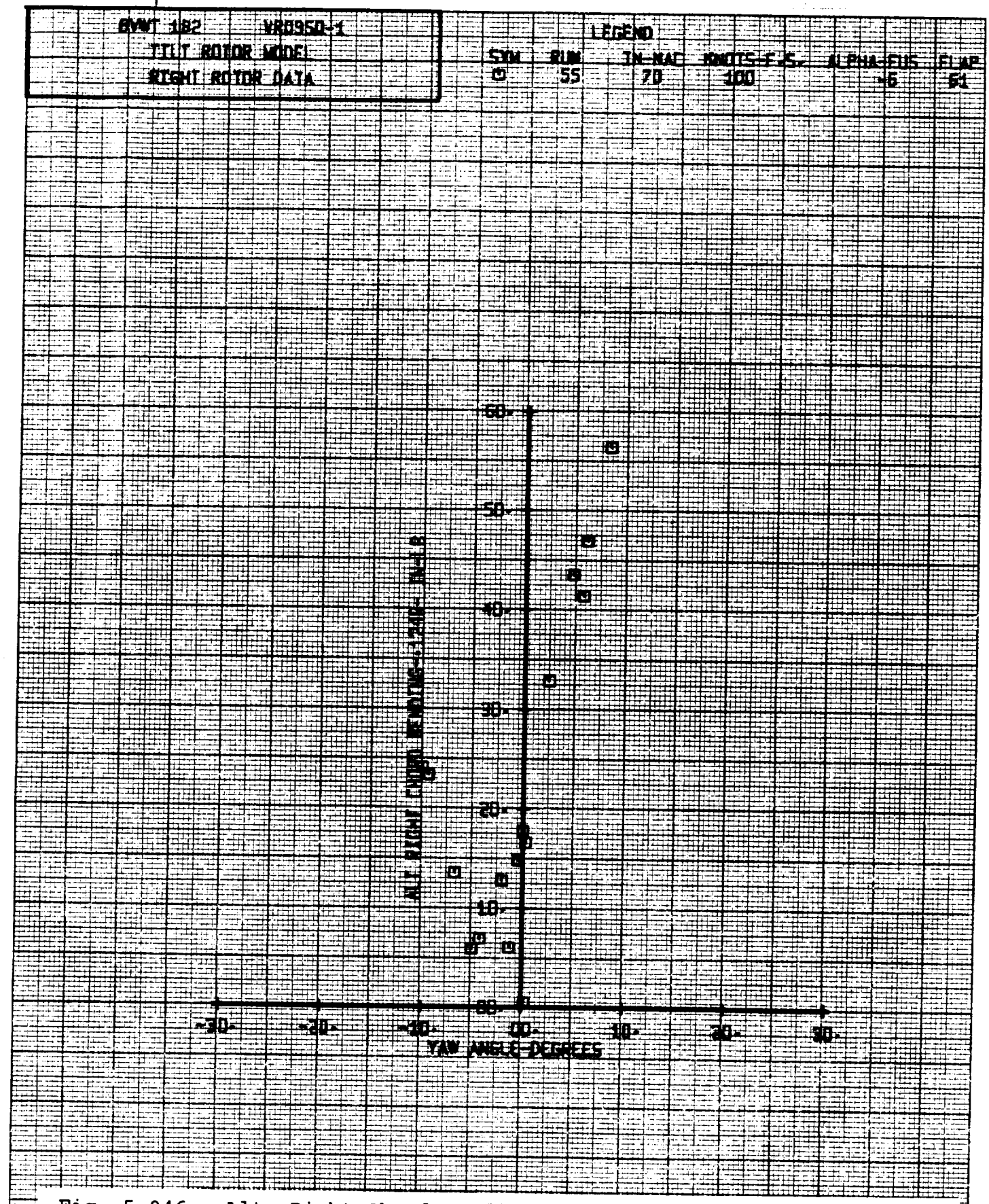


Fig. 5-046. Alt. Right Chord Bending Vs. Yaw Angle ∿ Degrees.

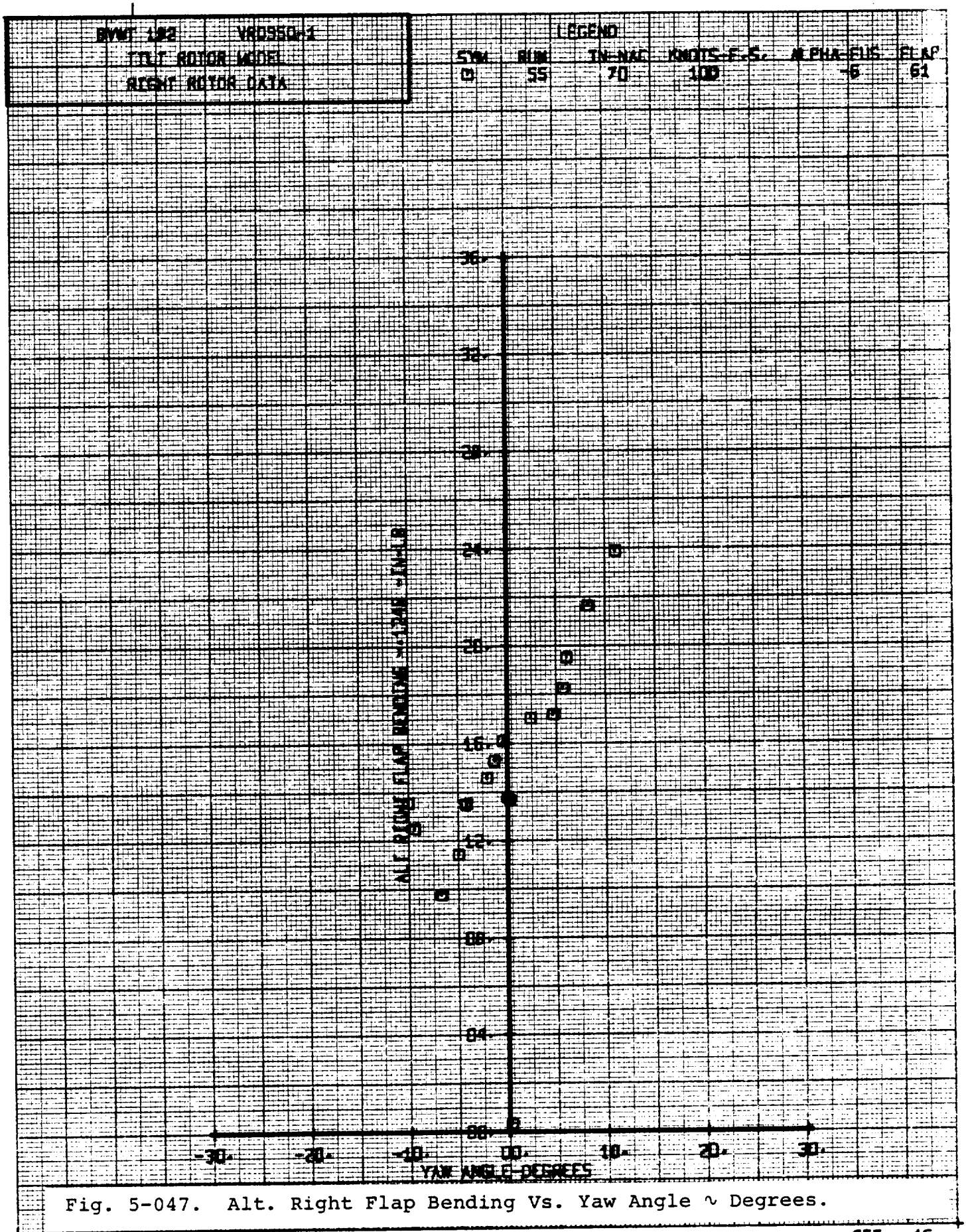


Fig. 5-047. Alt. Right Flap Bending Vs. Yaw Angle ∿ Degrees.

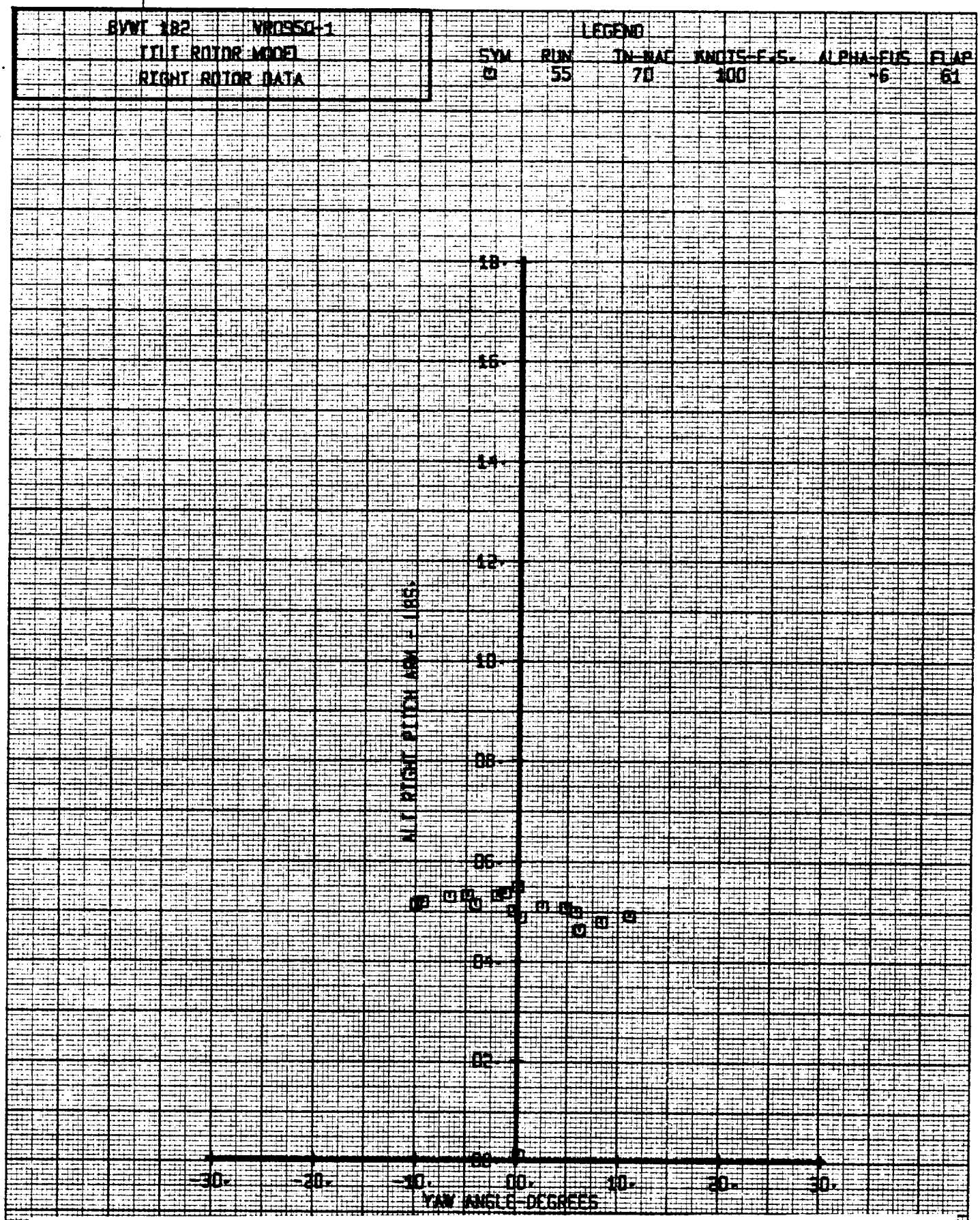


Fig. 5-048. Alt. Right Ptich Link Load Vs. Yaw Angle ∿ Degrees.

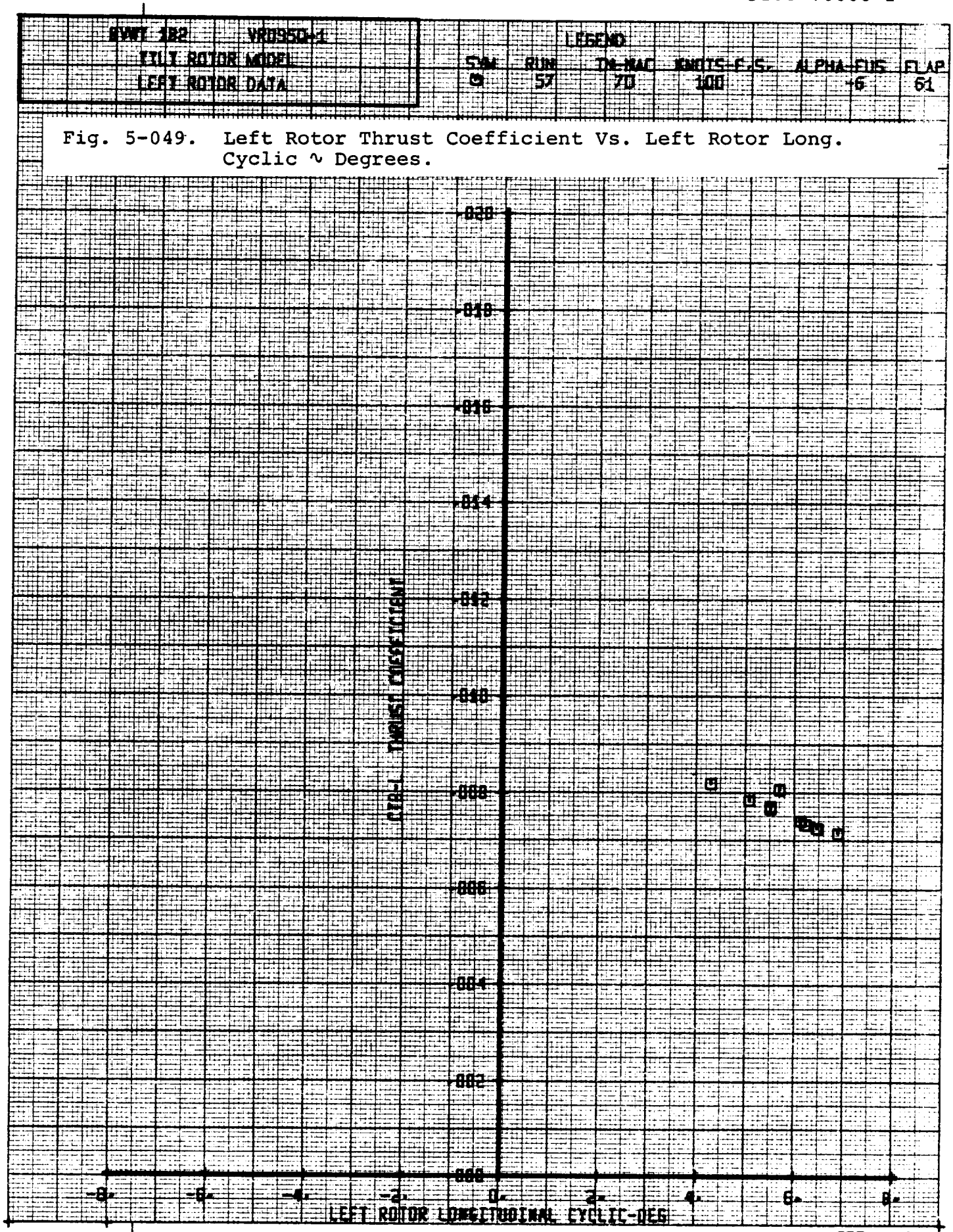


Fig. 5-049. Left Rotor Thrust Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

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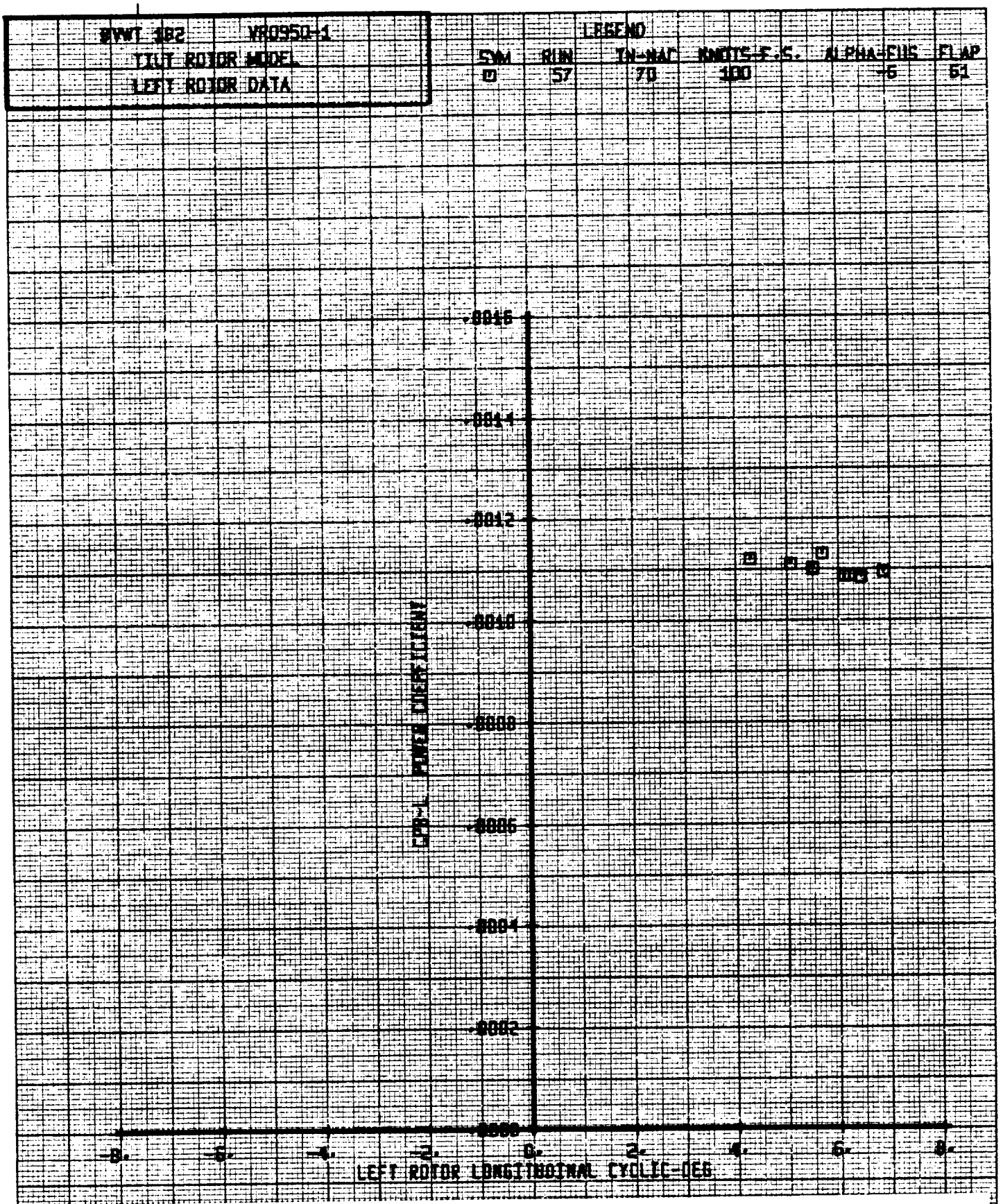


Fig. 5-050. Left Rotor Power Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

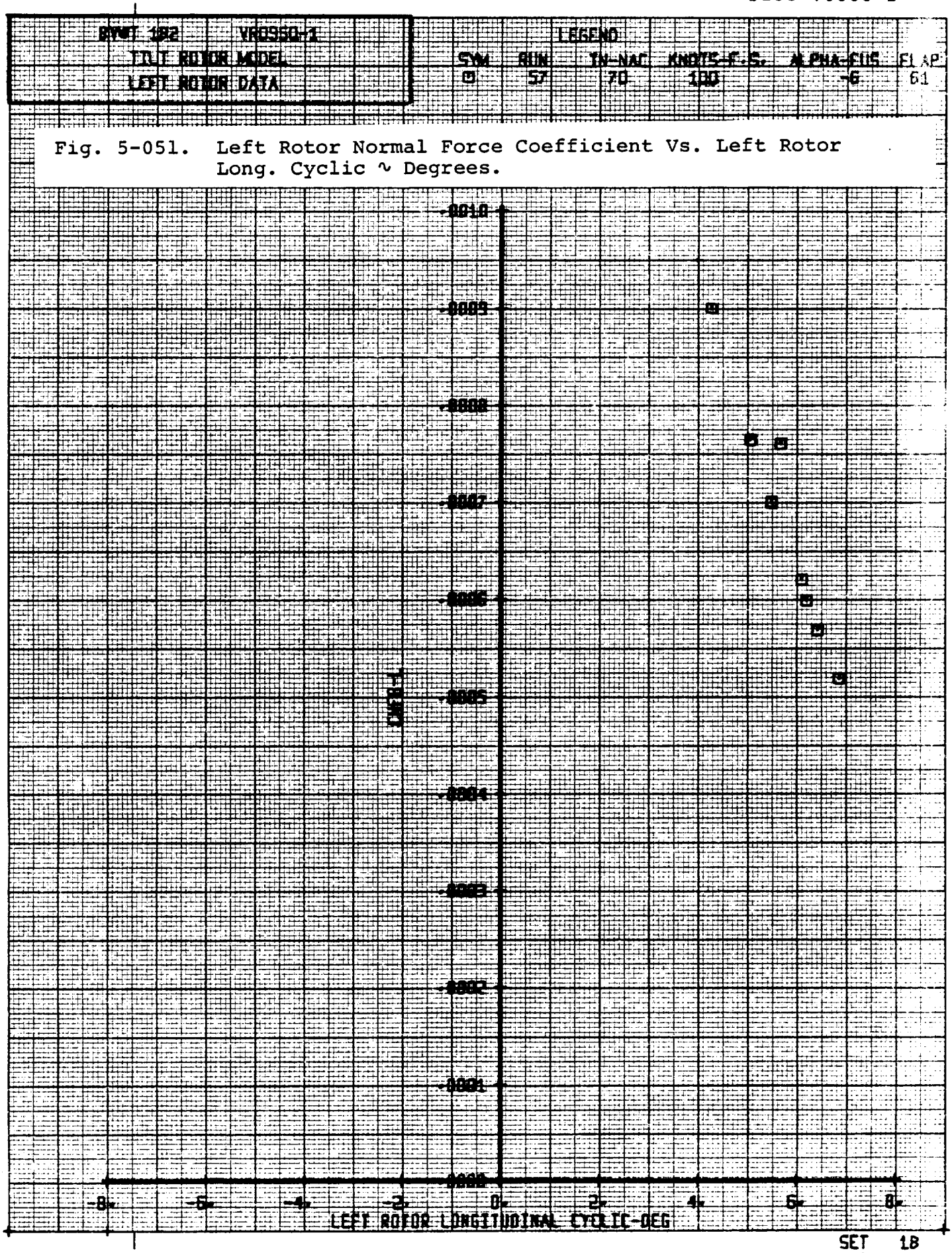


Fig. 5-051. Left Rotor Normal Force Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

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W 182

SET 18
BVWT 182

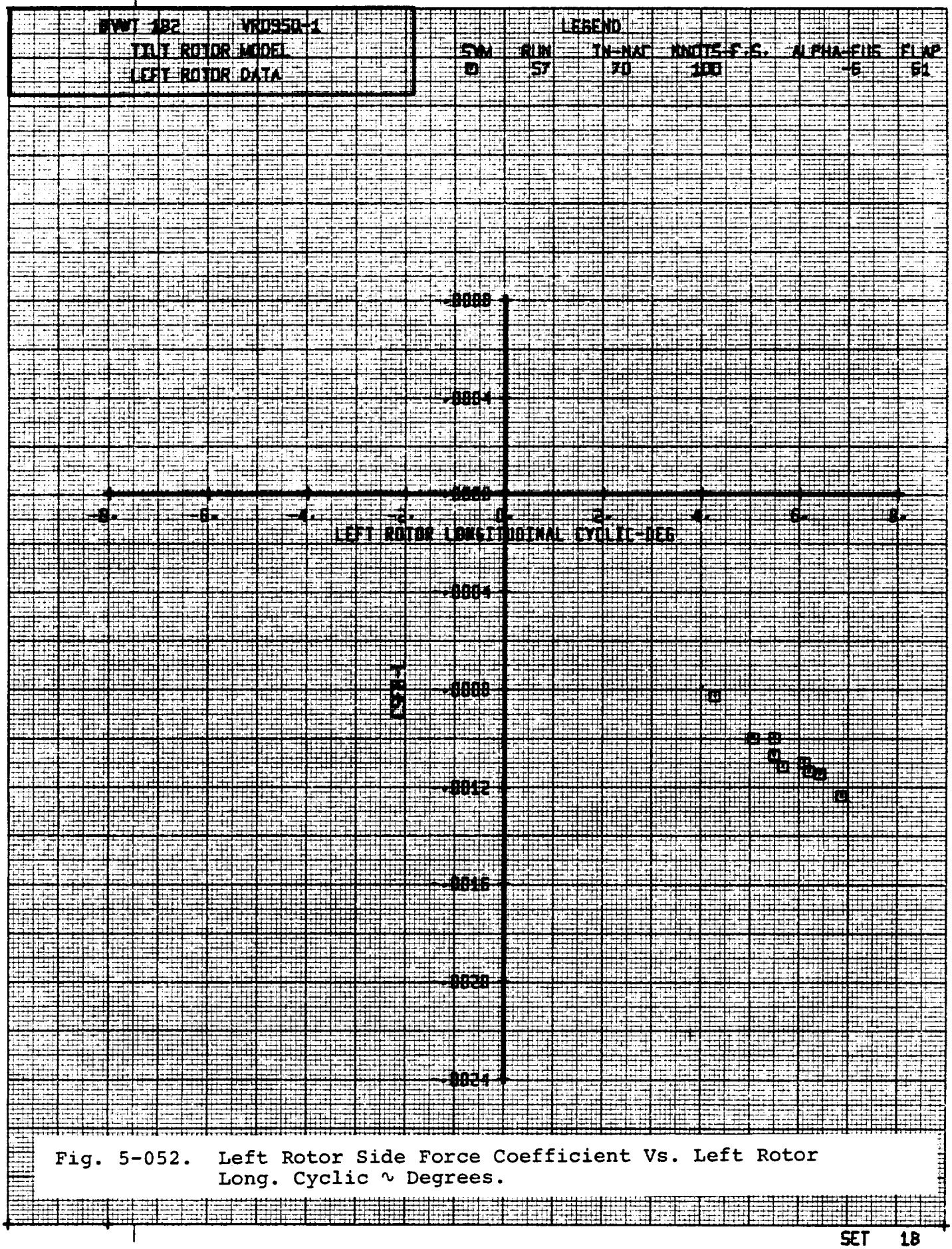


Fig. 5-052. Left Rotor Side Force Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

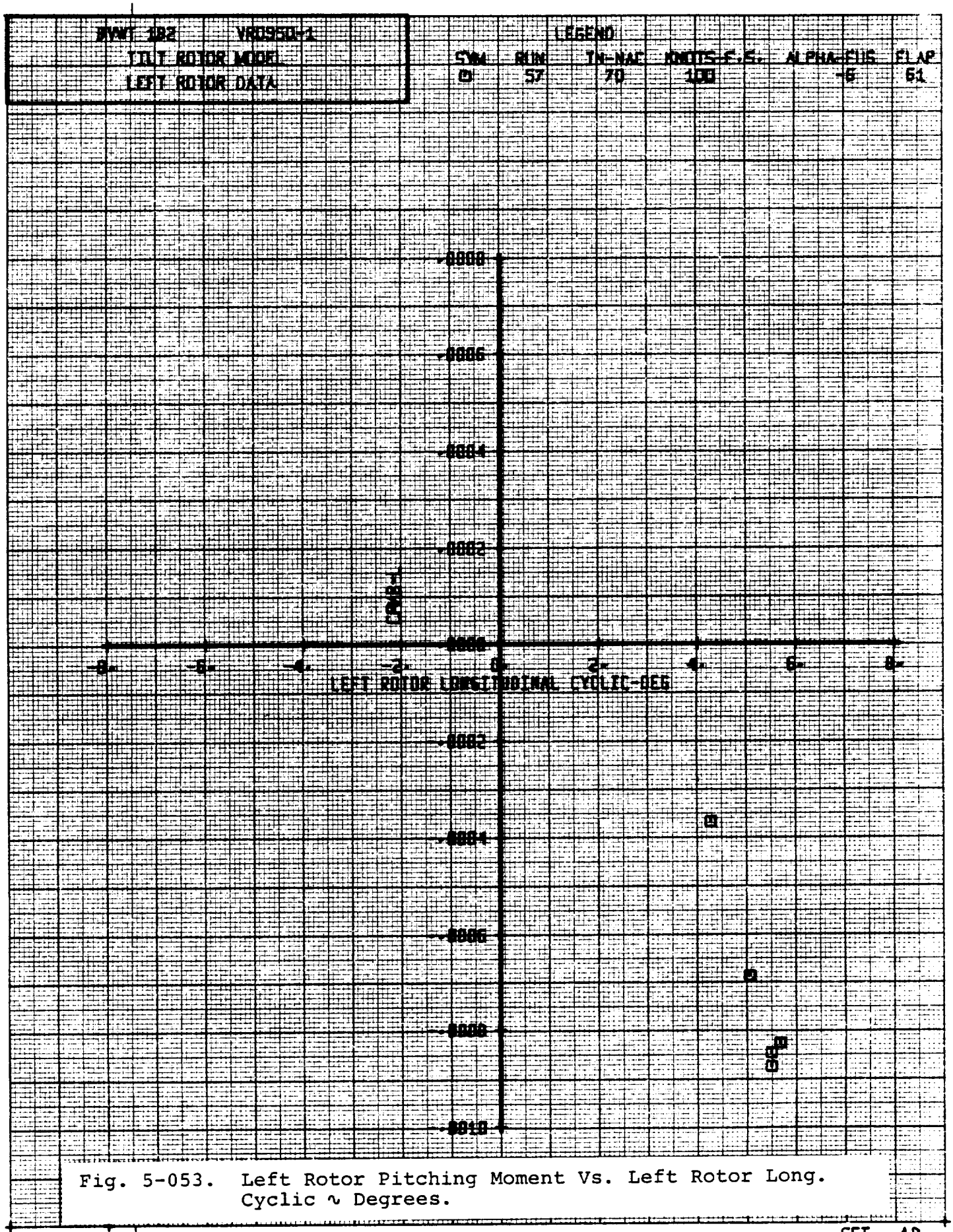


Fig. 5-053. Left Rotor Pitching Moment Vs. Left Rotor Long. Cyclic ∿ Degrees.

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182

SET 18
BVWT 182

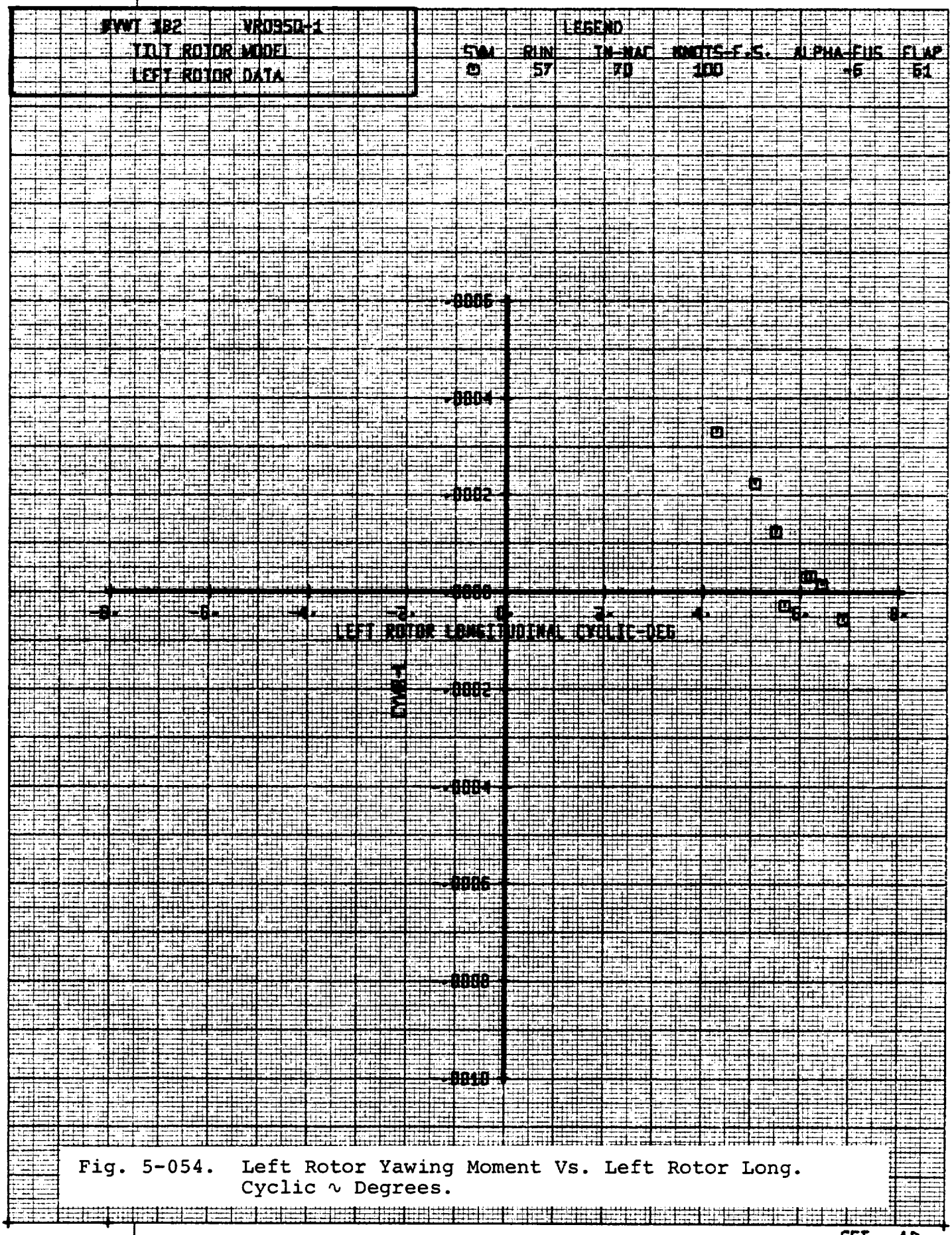


Fig. 5-054. Left Rotor Yawing Moment Vs. Left Rotor Long. Cyclic ∿ Degrees.

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182

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BVWT 182

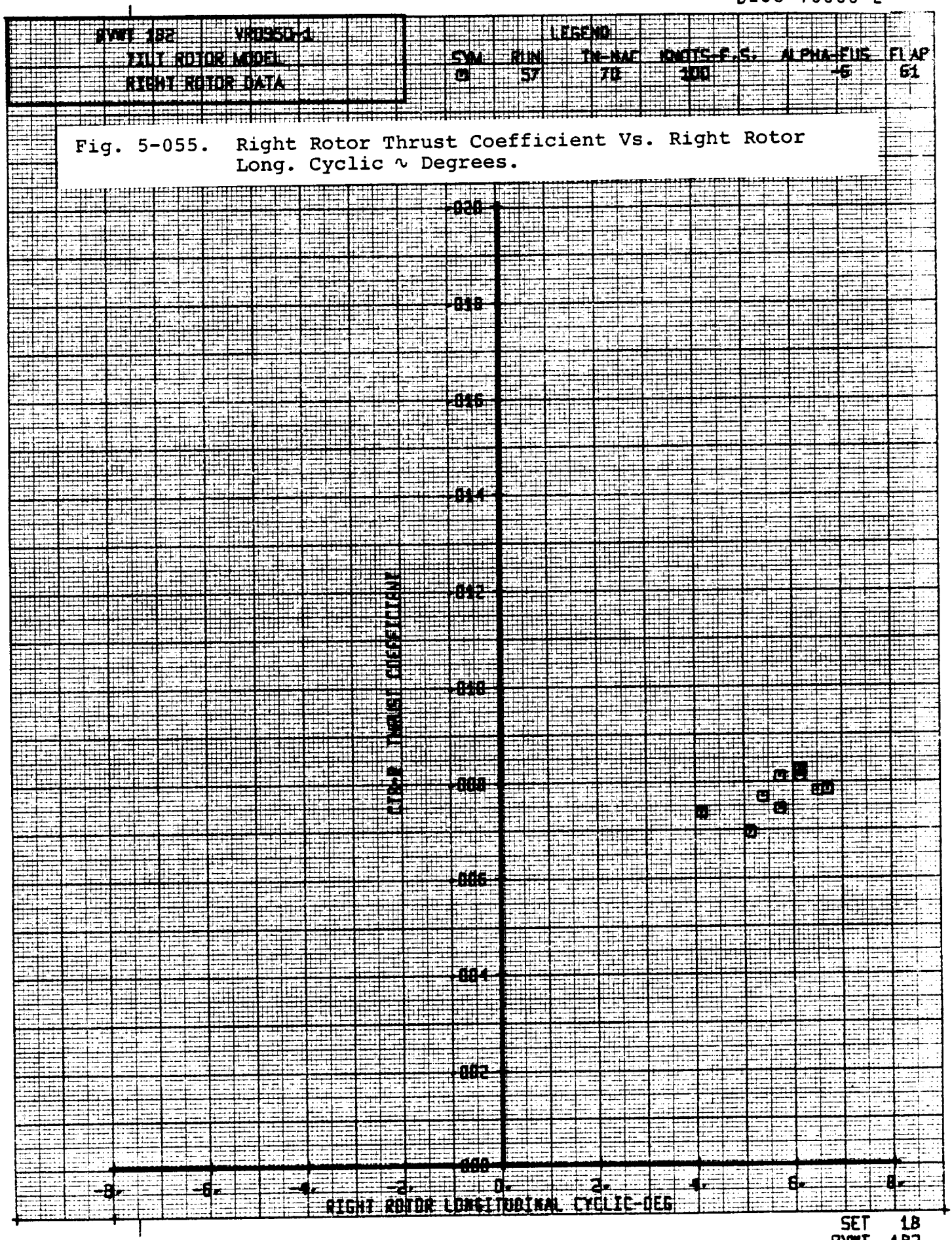


Fig. 5-055. Right Rotor Thrust Coefficient Vs. Right Rotor Long. Cyclic ∿ Degrees.

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182

SET 18
BVWT 182

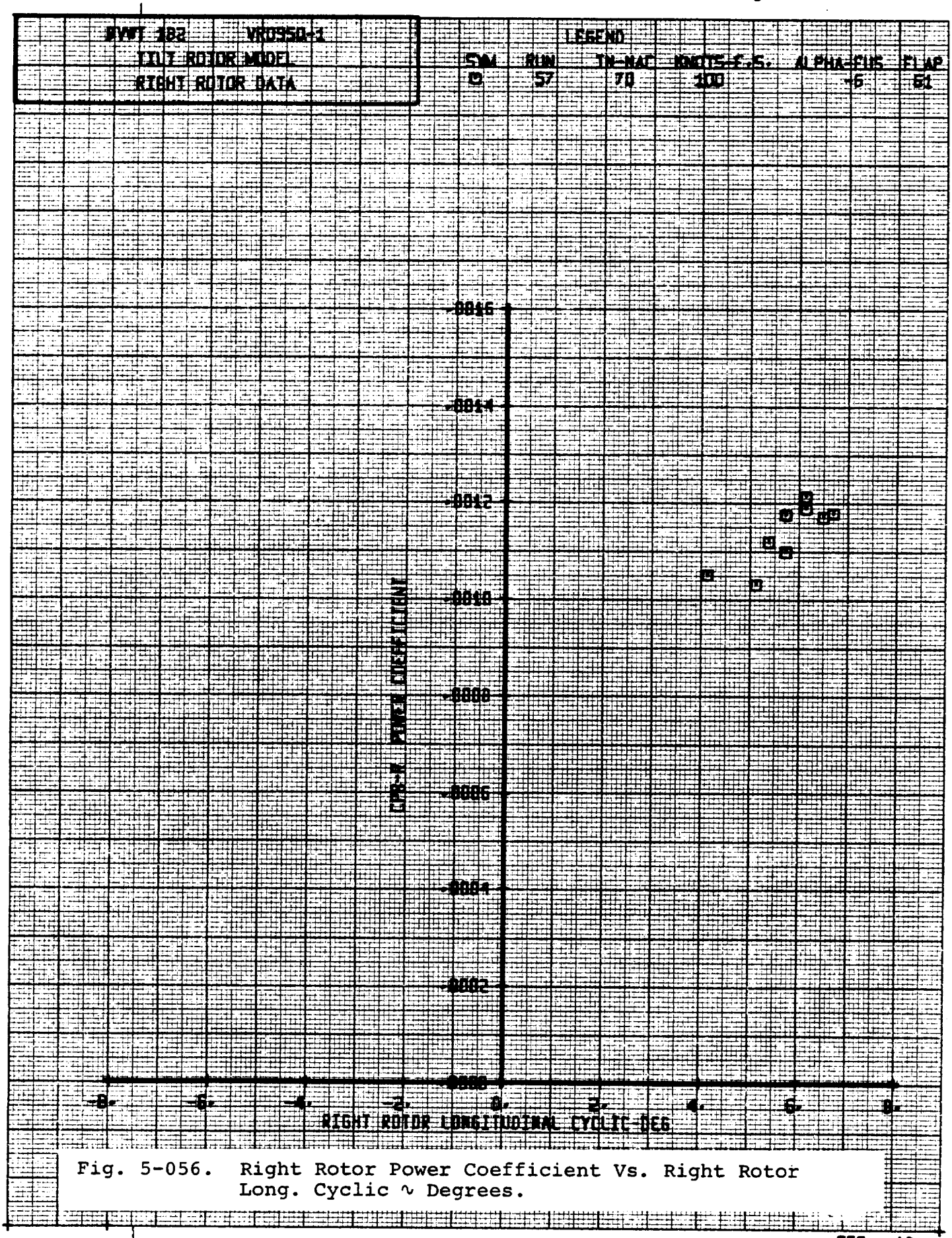


Fig. 5-056. Right Rotor Power Coefficient Vs. Right Rotor Long. Cyclic ∿ Degrees.

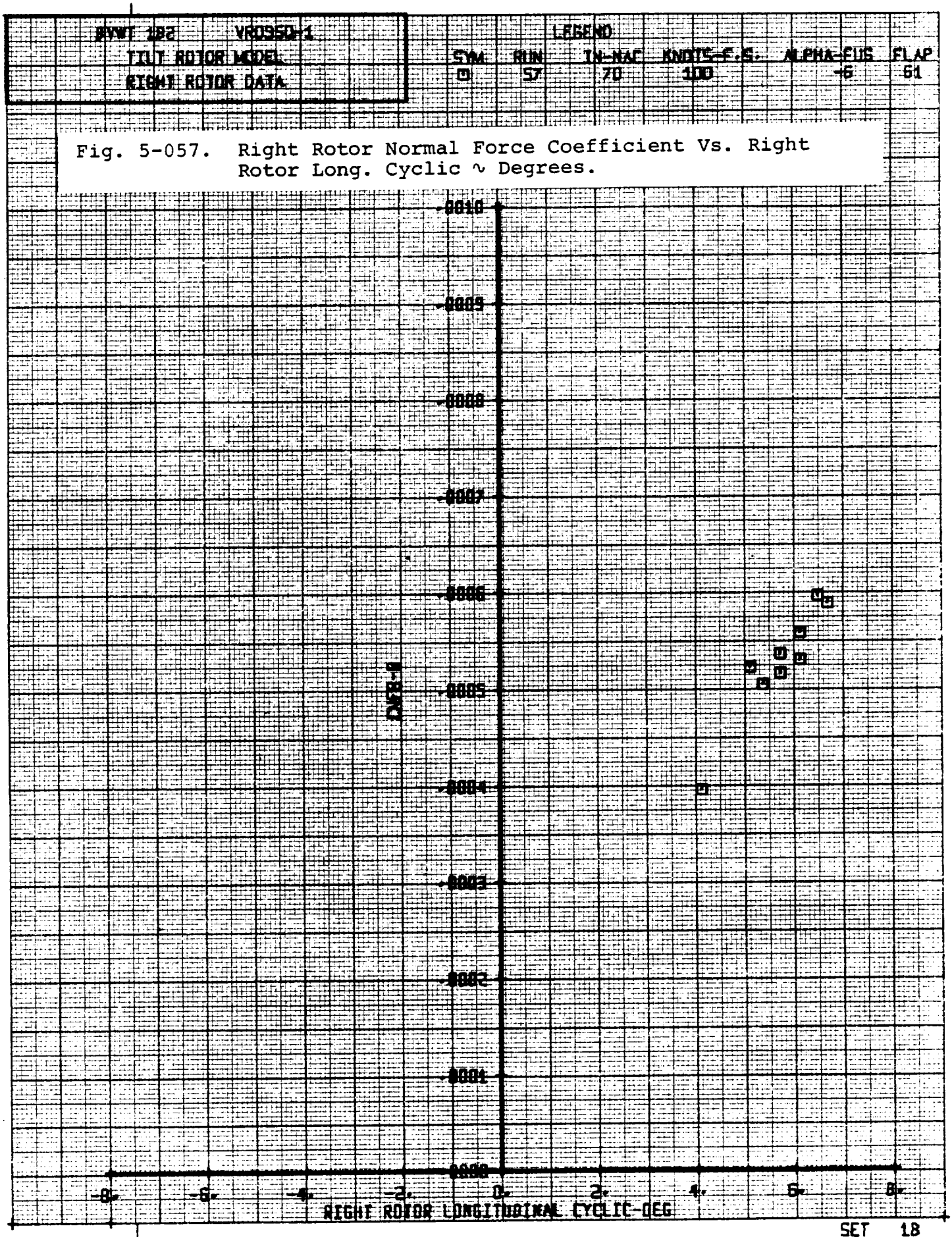


Fig. 5-057. Right Rotor Normal Force Coefficient Vs. Right Rotor Long. Cyclic ∿ Degrees.

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V 182

SET 18
BVWT 182

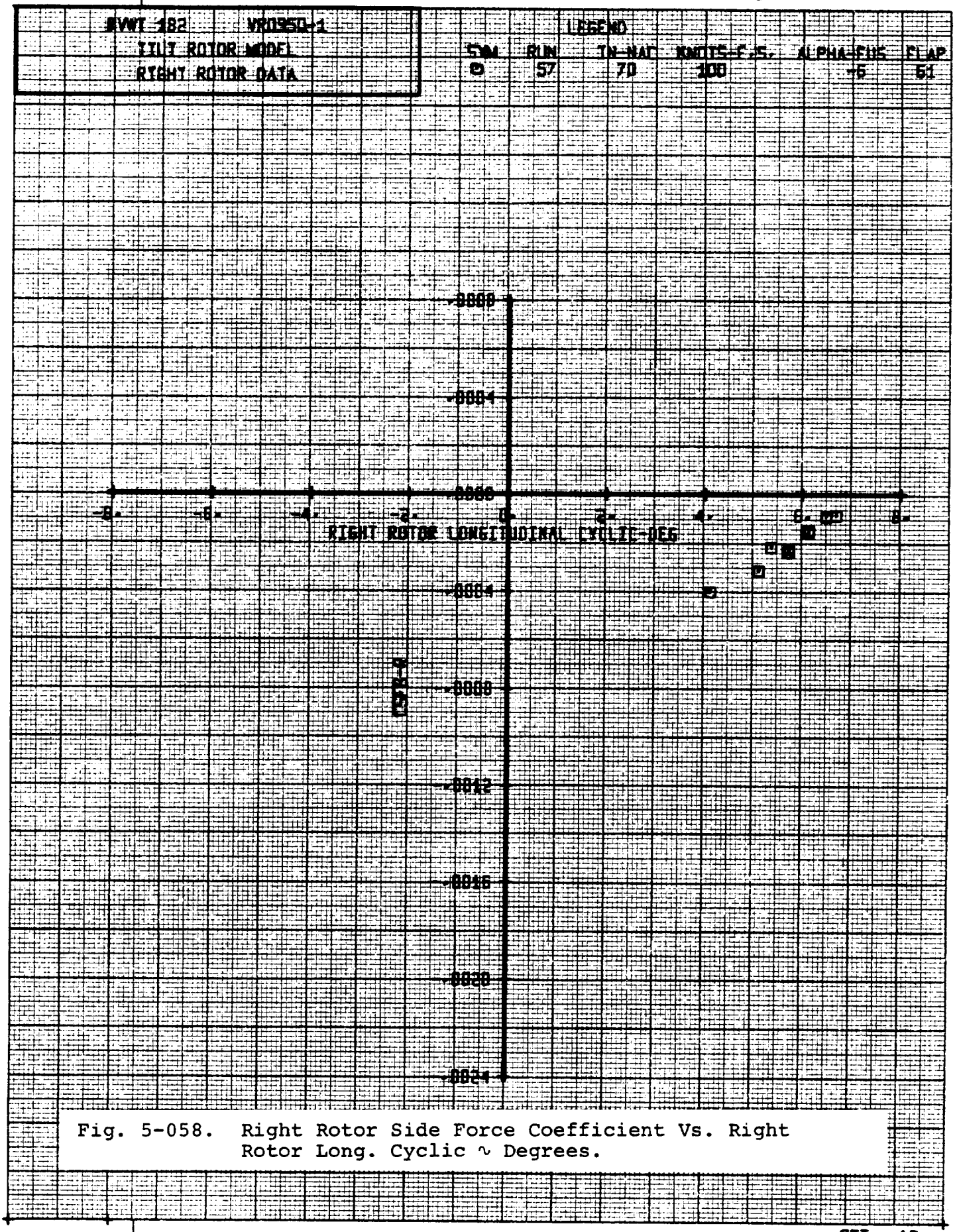


Fig. 5-058. Right Rotor Side Force Coefficient Vs. Right Rotor Long. Cyclic ∿ Degrees.

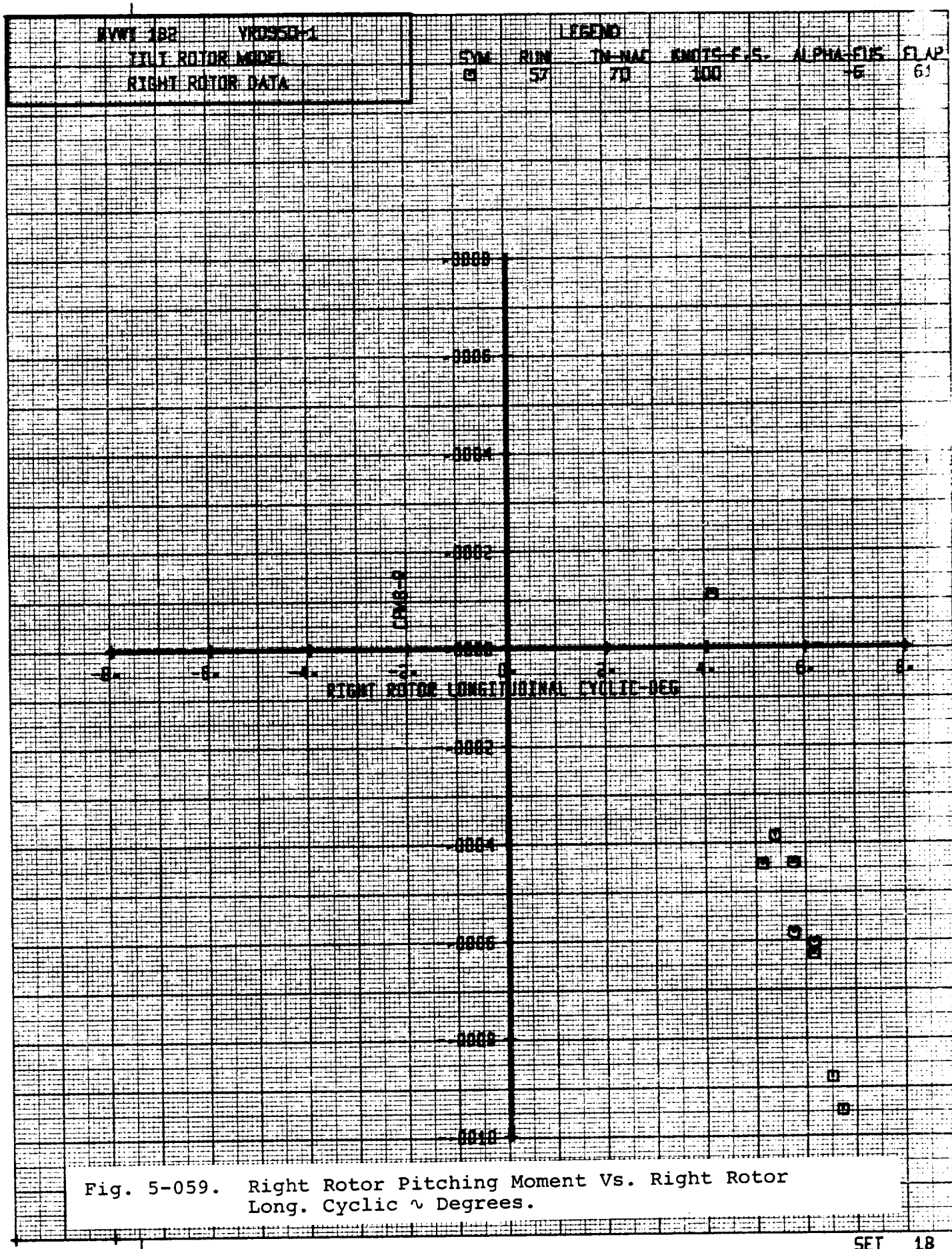


Fig. 5-059. Right Rotor Pitching Moment Vs. Right Rotor Long. Cyclic ∿ Degrees.

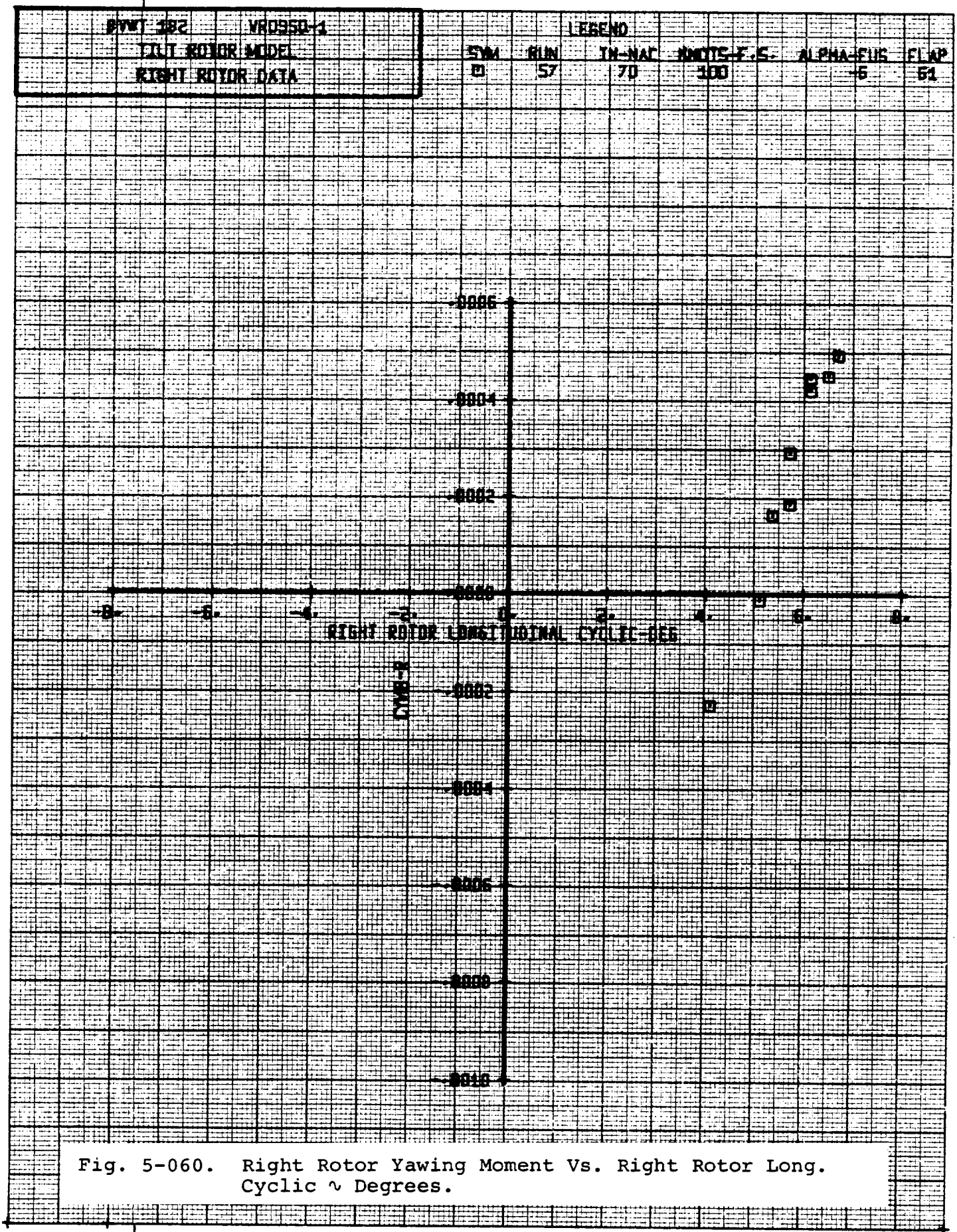


Fig. 5-060. Right Rotor Yawing Moment Vs. Right Rotor Long. Cyclic ∿ Degrees.

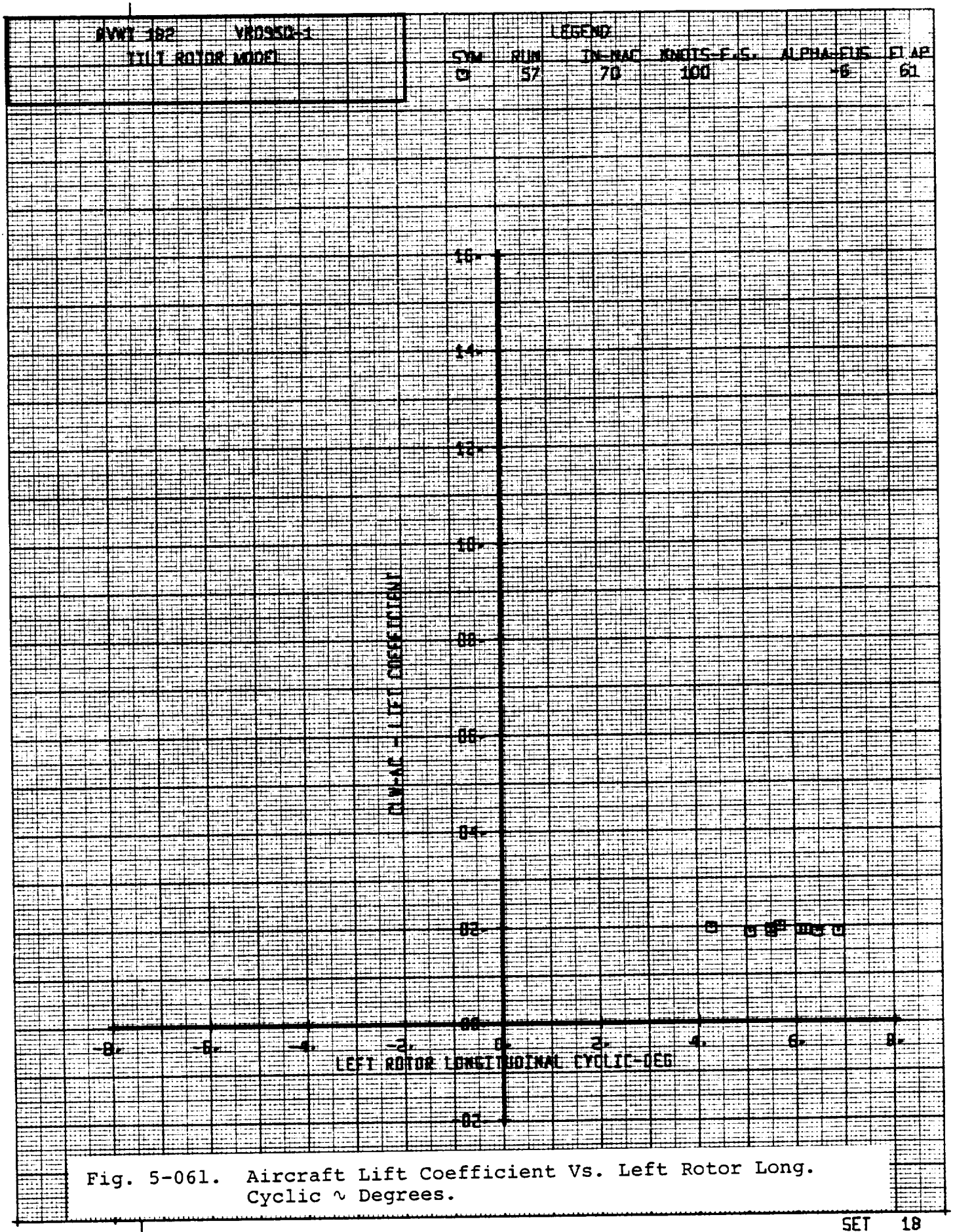


Fig. 5-061. Aircraft Lift Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

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V 182

SET 18
BVWT 182

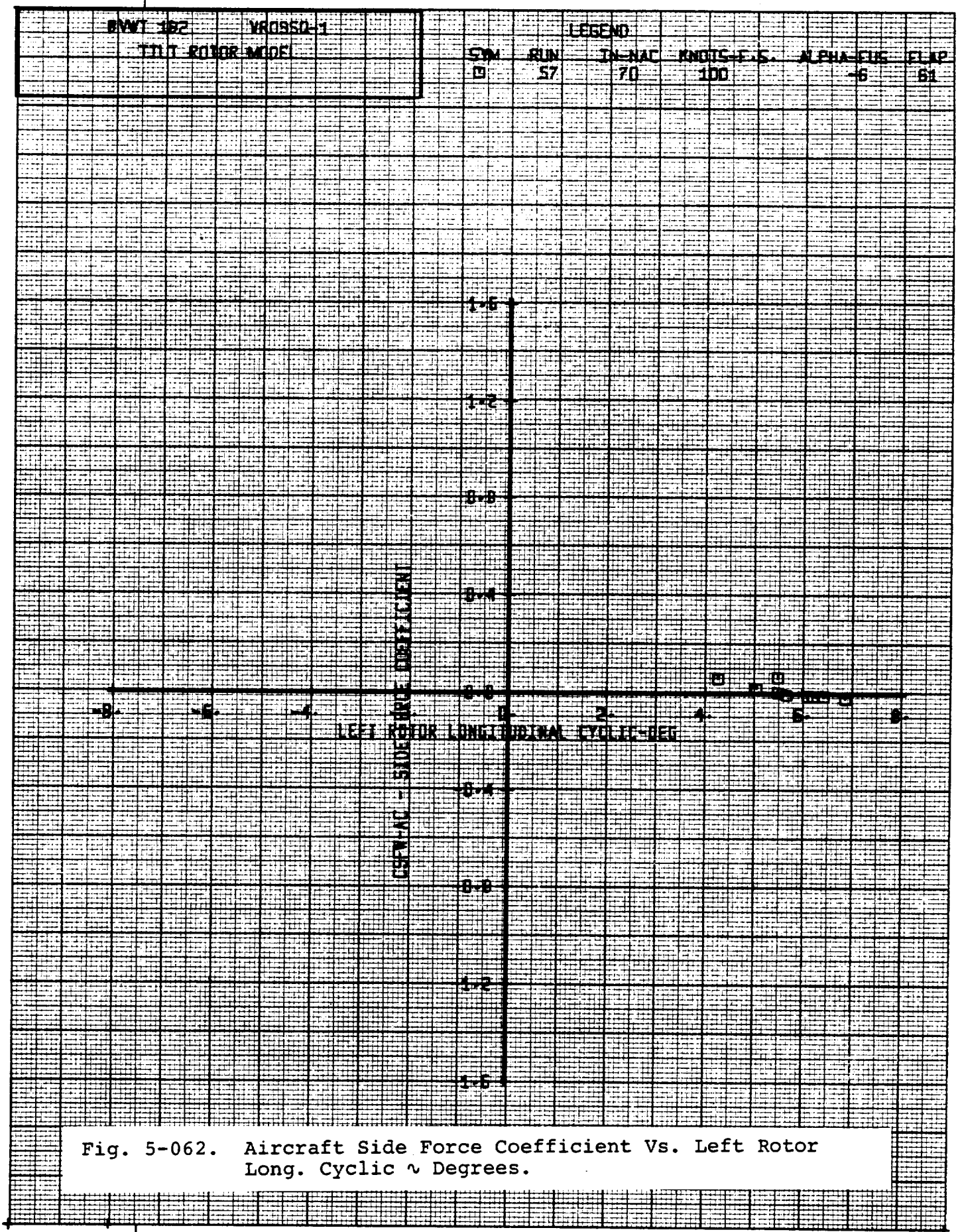


Fig. 5-062. Aircraft Side Force Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

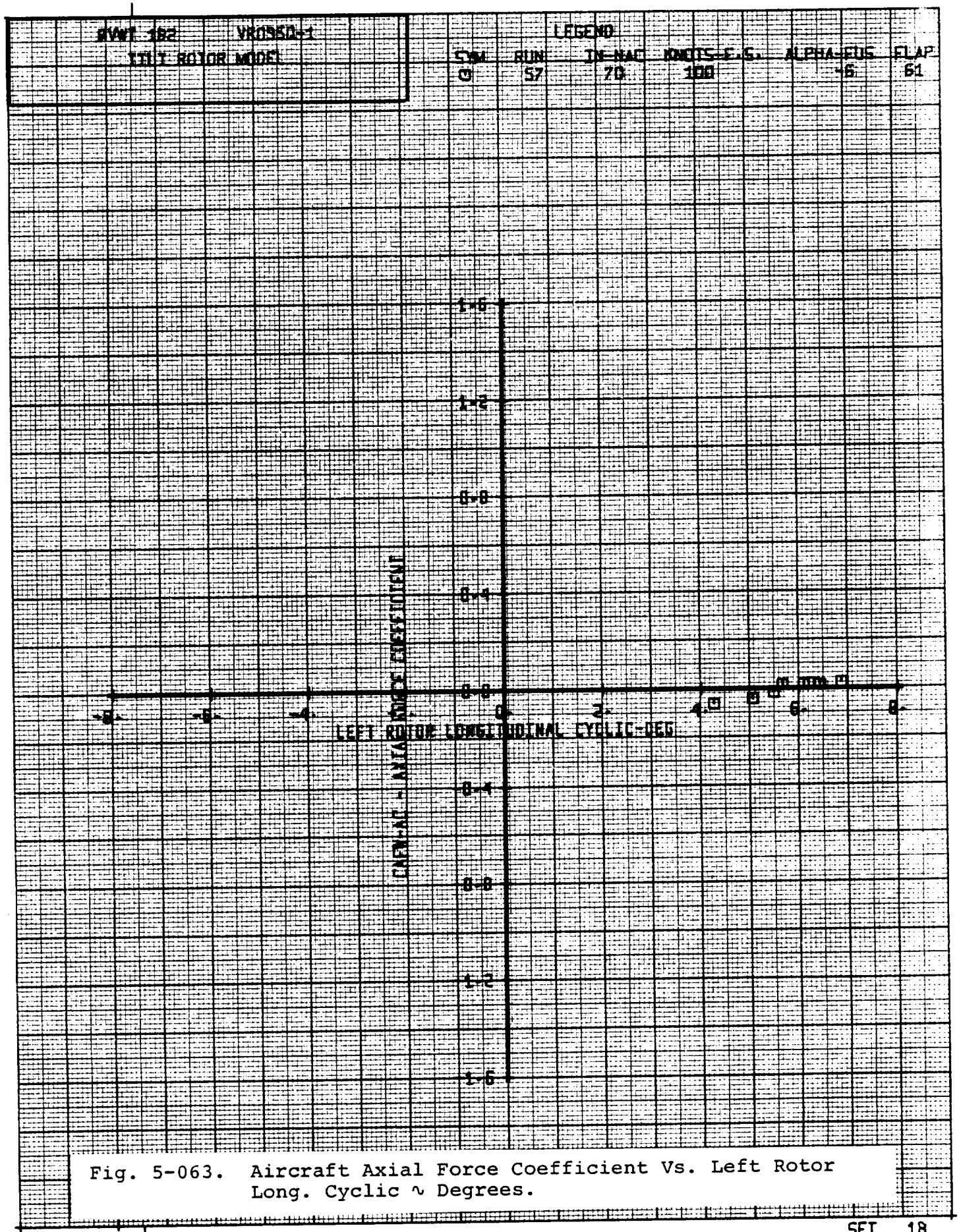


Fig. 5-063. Aircraft Axial Force Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

FT 18
1 182

SET 18
BVWT 182

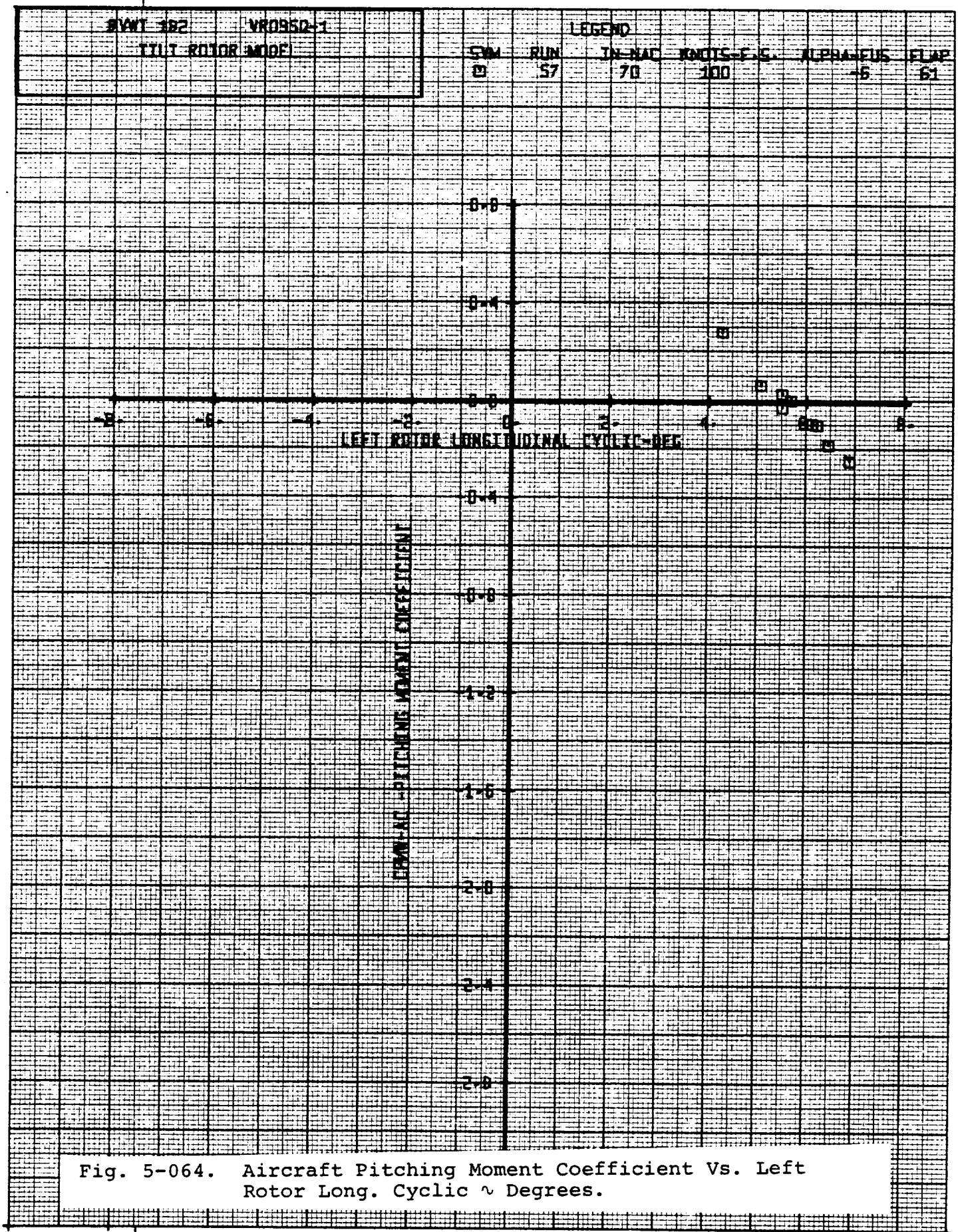


Fig. 5-064. Aircraft Pitching Moment Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

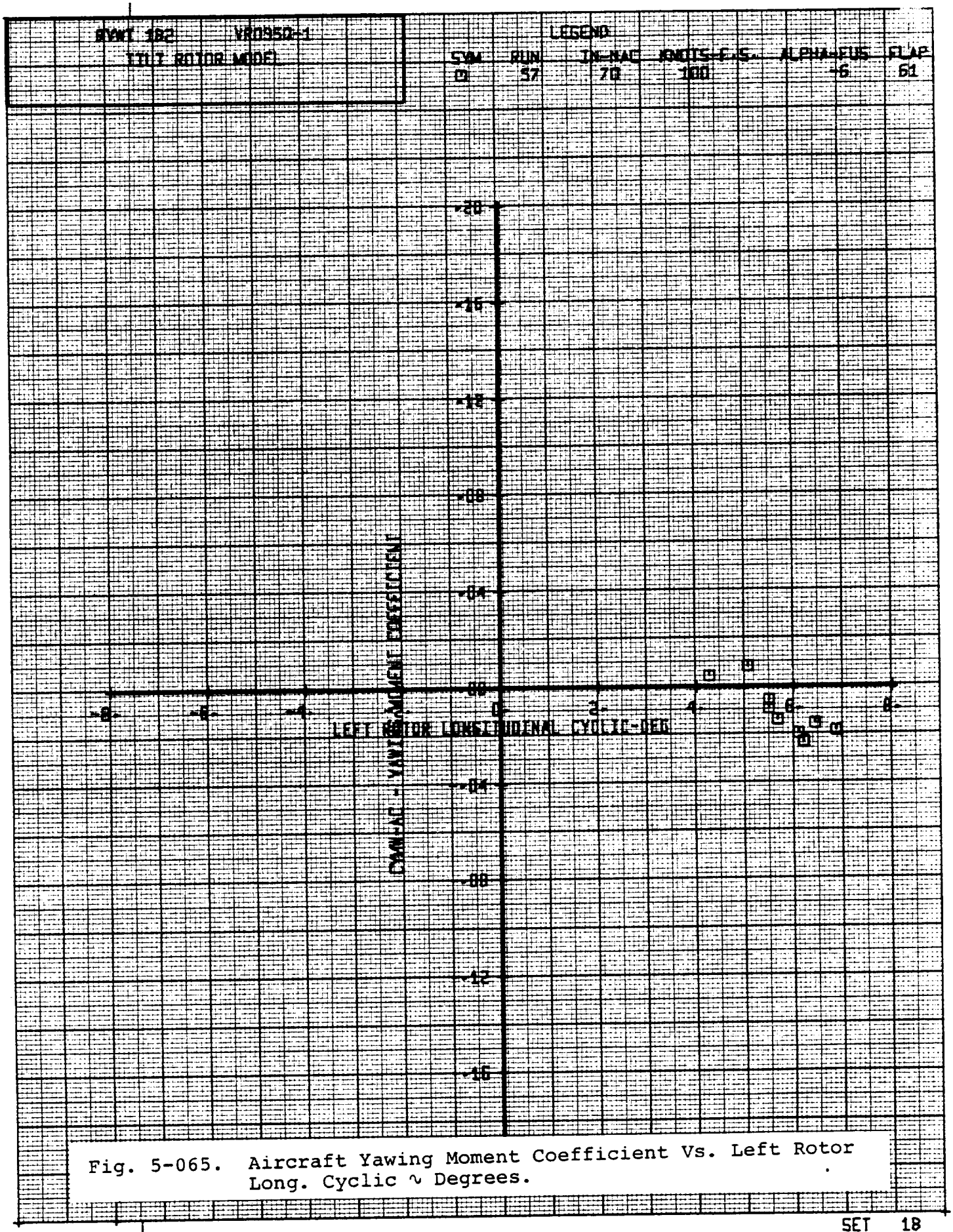


Fig. 5-065. Aircraft Yawing Moment Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

SET 18
BVWT 182

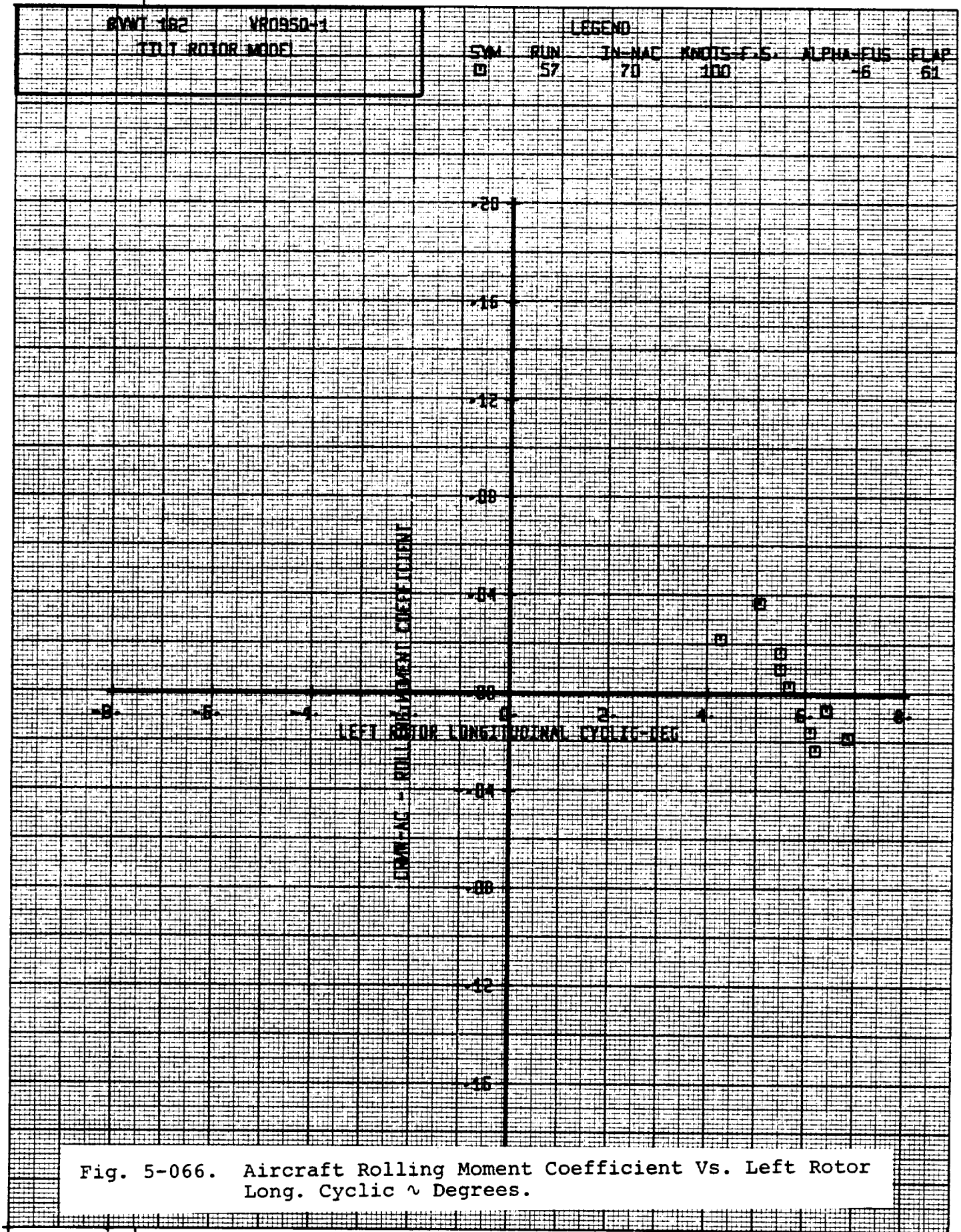


Fig. 5-066. Aircraft Rolling Moment Coefficient Vs. Left Rotor Long. Cyclic ∿ Degrees.

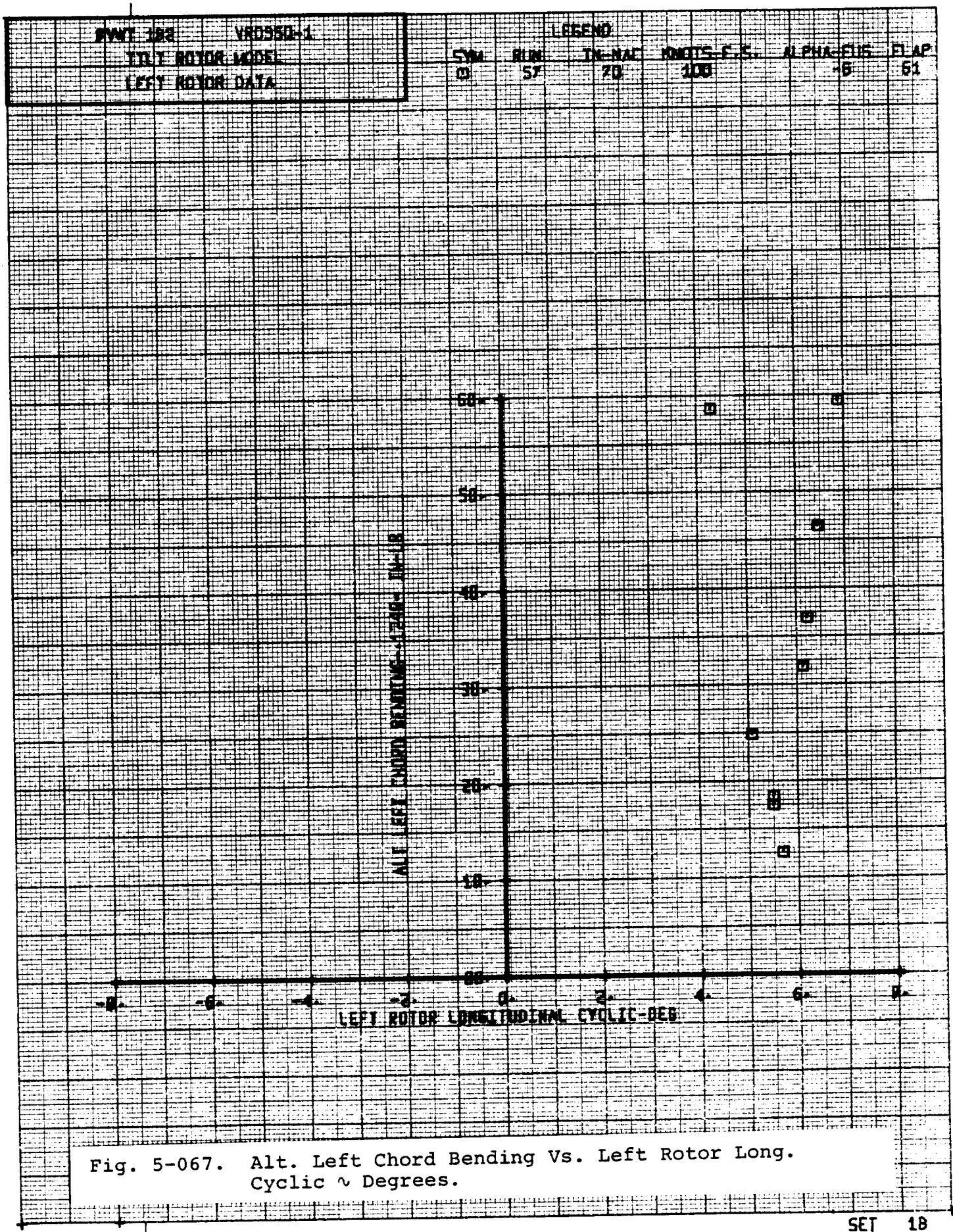


Fig. 5-067. Alt. Left Chord Bending Vs. Left Rotor Long. Cyclic ∿ Degrees.

SET 18
BVWT 182

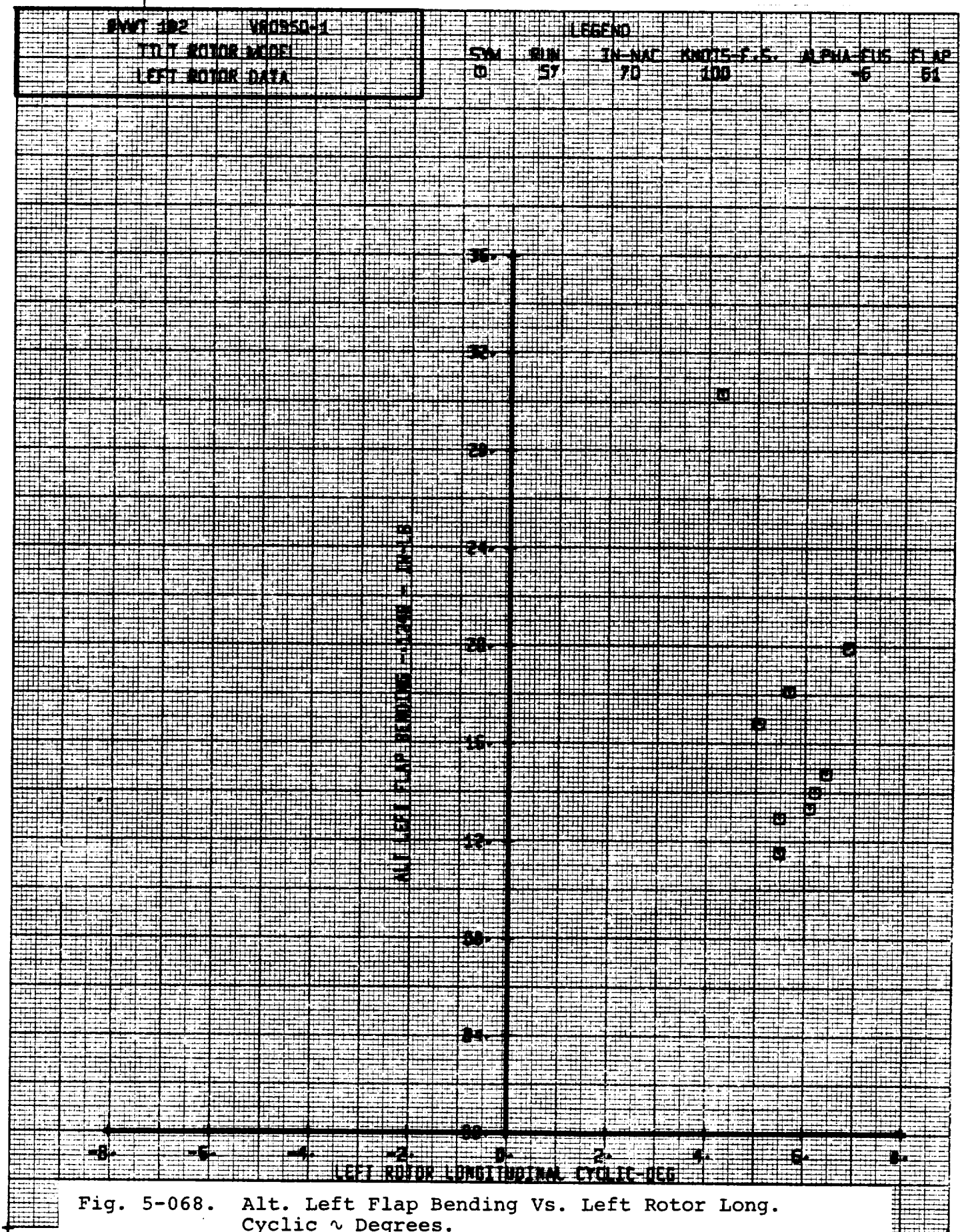


Fig. 5-068. Alt. Left Flap Bending Vs. Left Rotor Long. Cyclic ∿ Degrees.

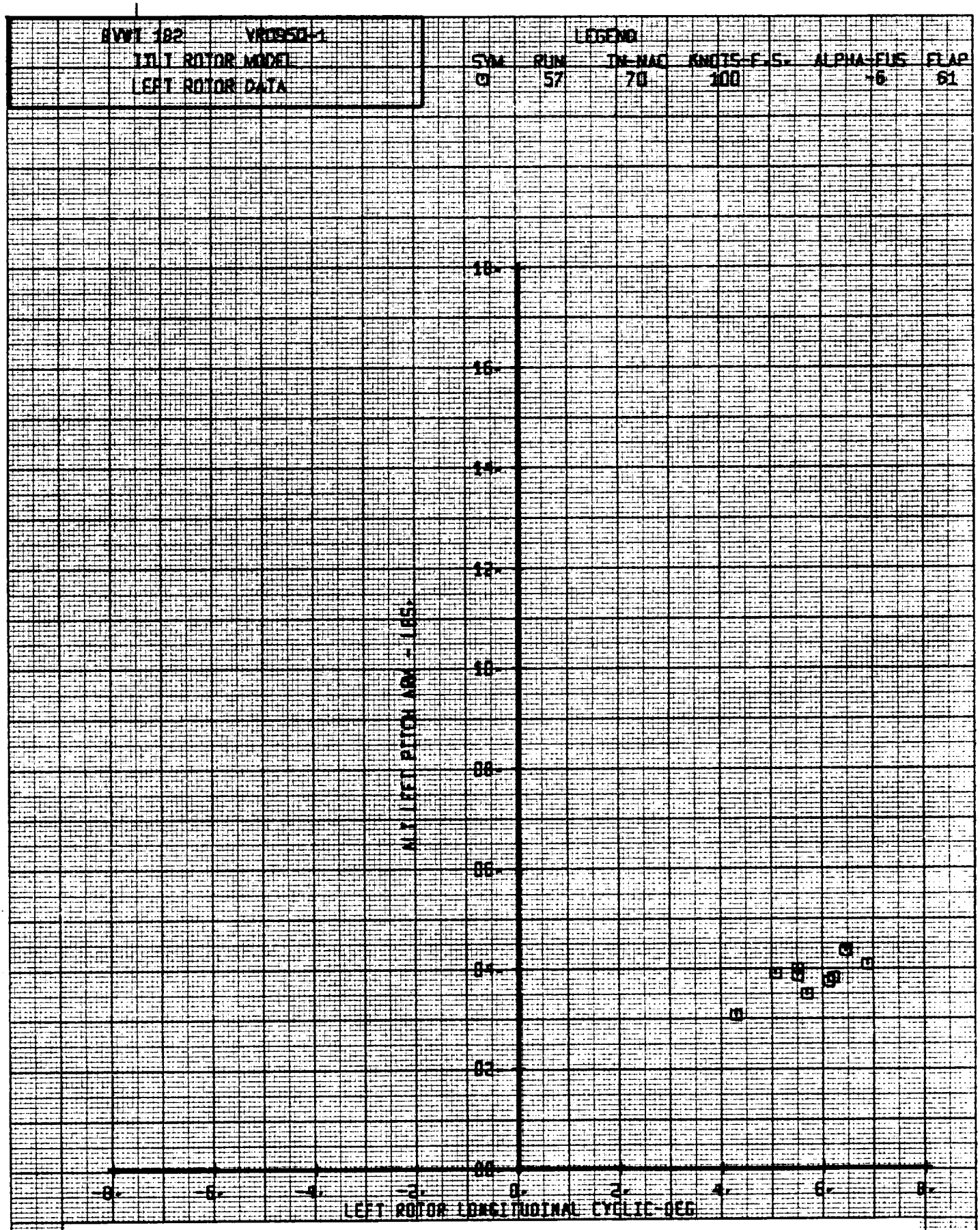


Fig. 5-069. Alt. Left Pitch Link Load Vs. Left Rotor Long. Cyclic ∿ Degrees.

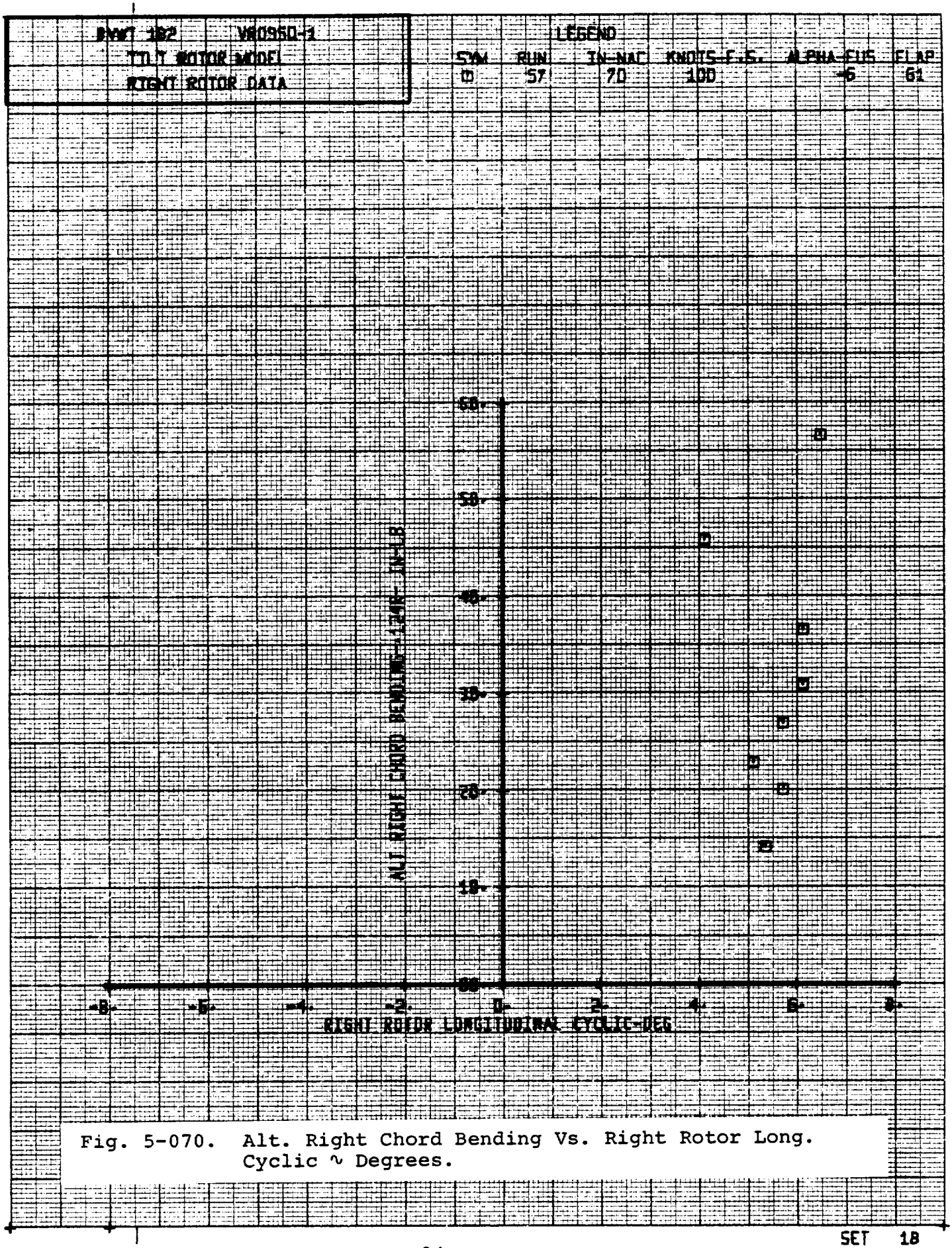


Fig. 5-070. Alt. Right Chord Bending Vs. Right Rotor Long. Cyclic ∿ Degrees.

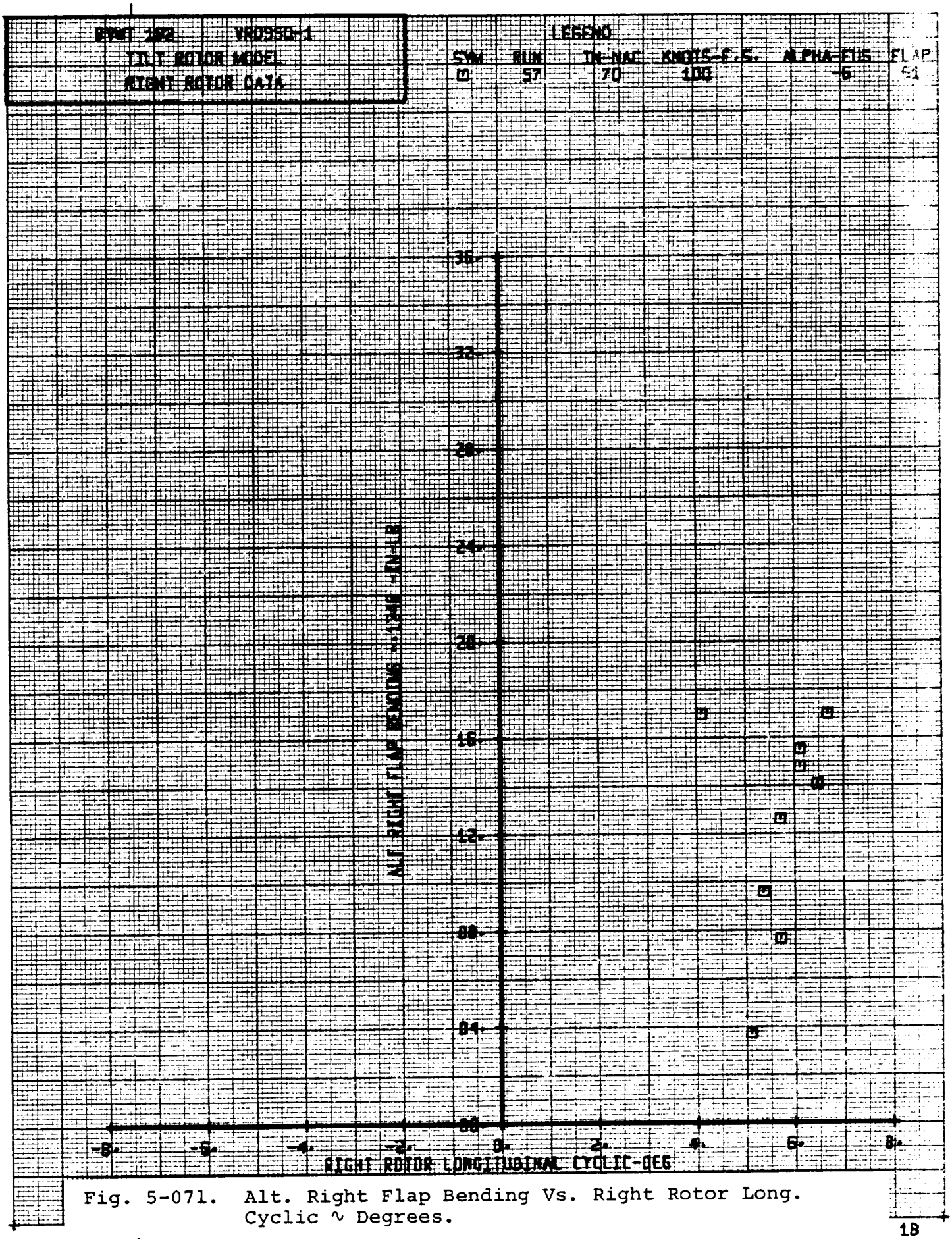


Fig. 5-071. Alt. Right Flap Bending Vs. Right Rotor Long. Cyclic ∿ Degrees.

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BVWT 182

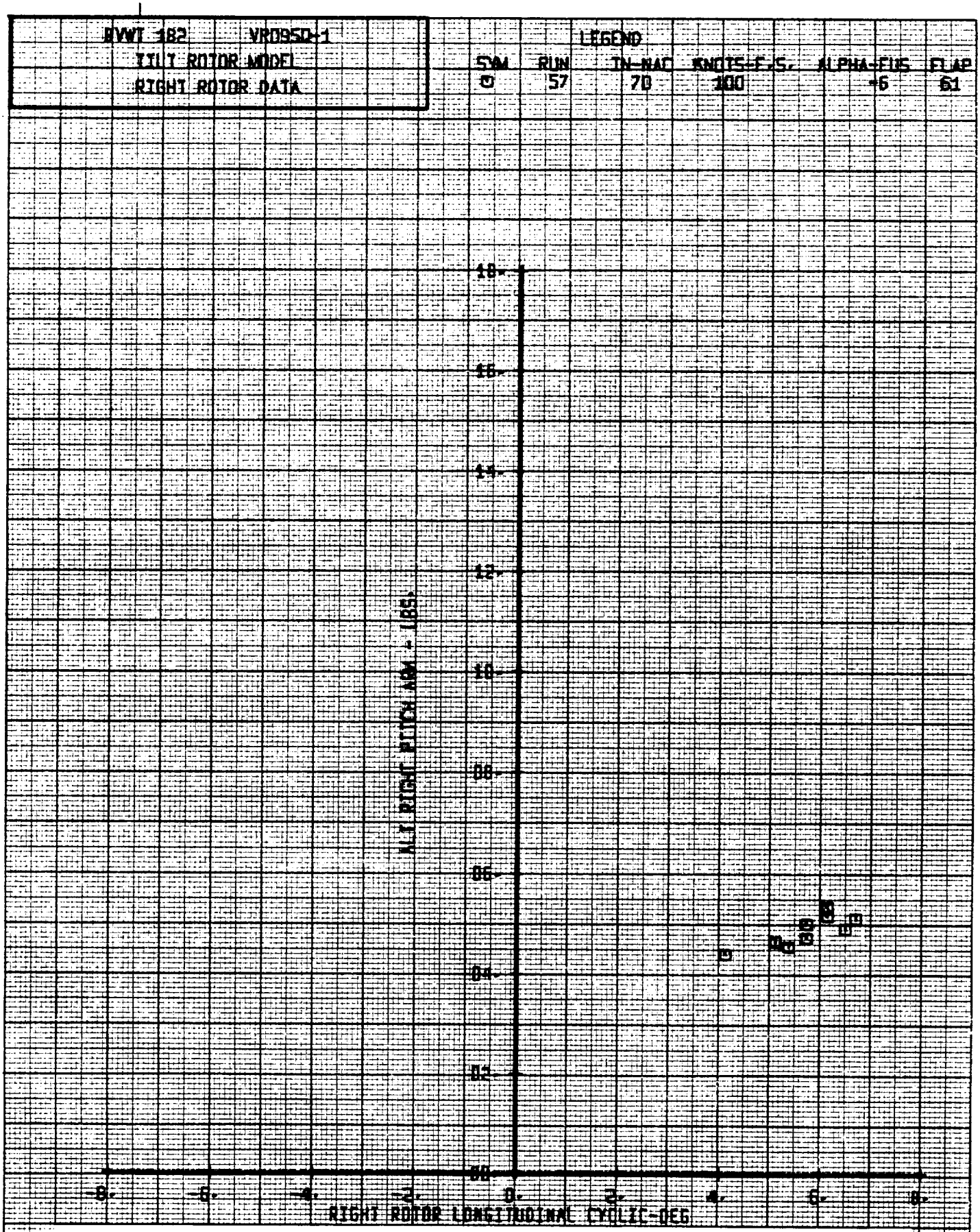


Fig. 5-072. Alt. Right Pitch Link Load Vs. Right Rotor Long. Cyclic ∿ Degrees.

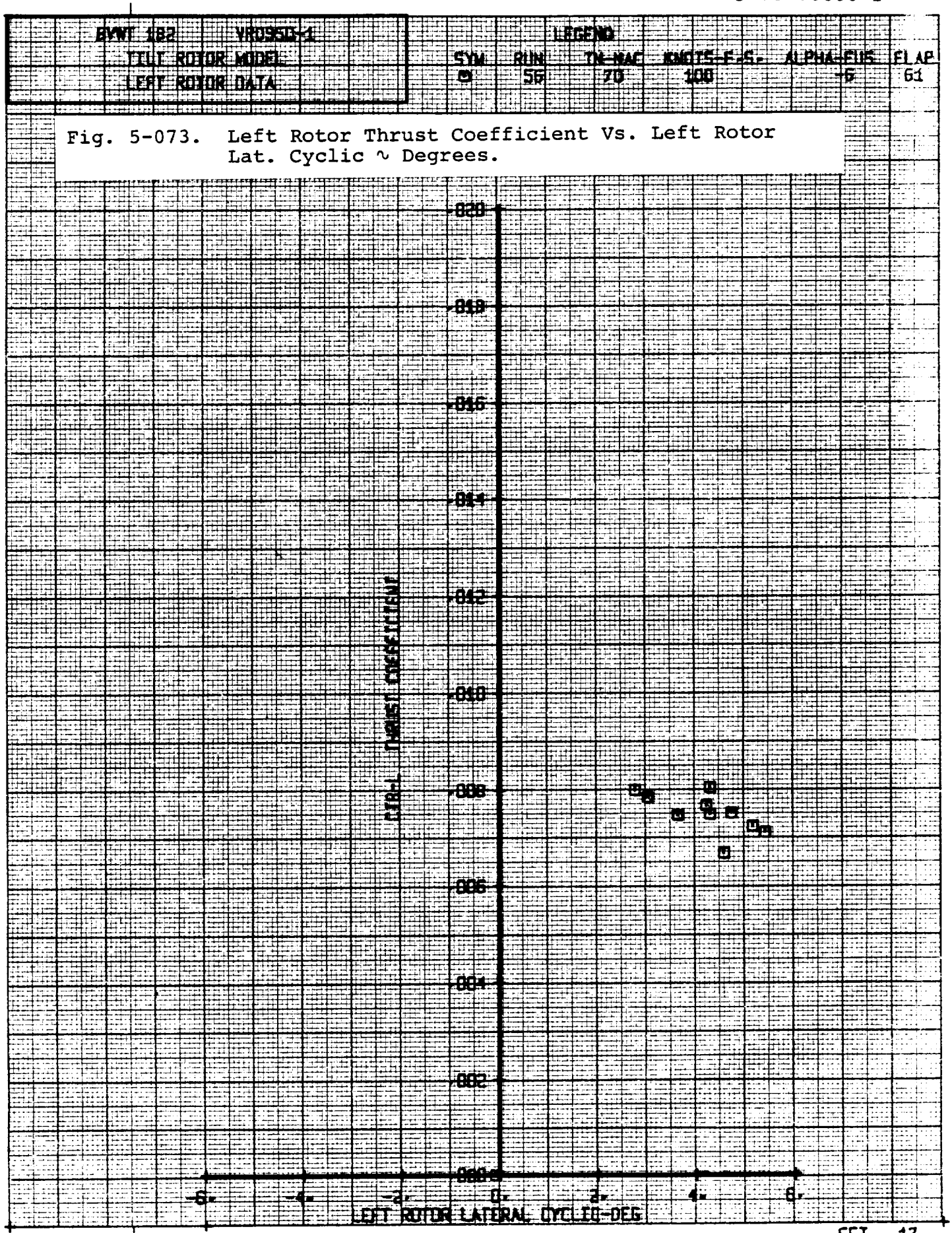


Fig. 5-073. Left Rotor Thrust Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

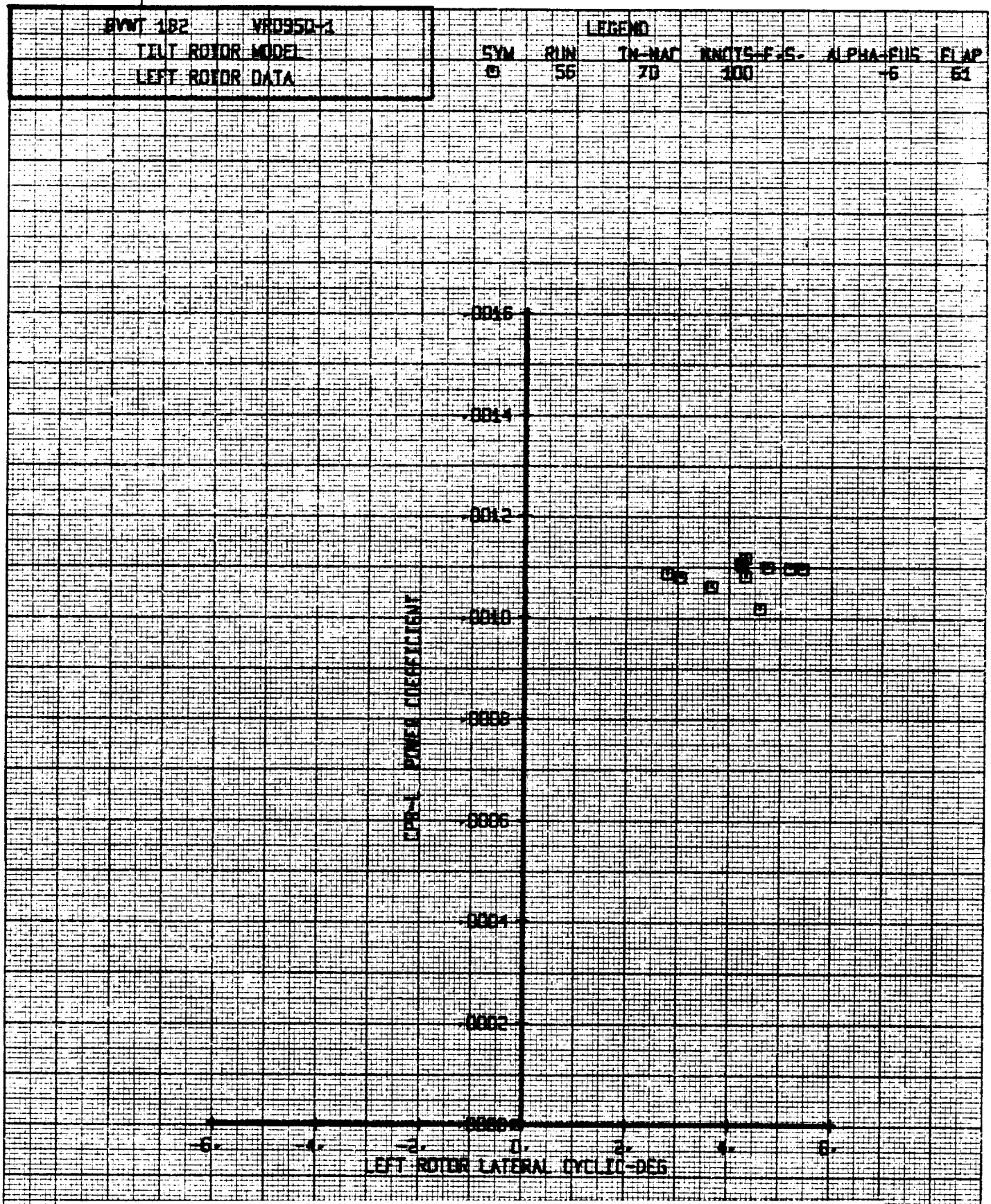


Fig. 5-074. Left Rotor Power Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

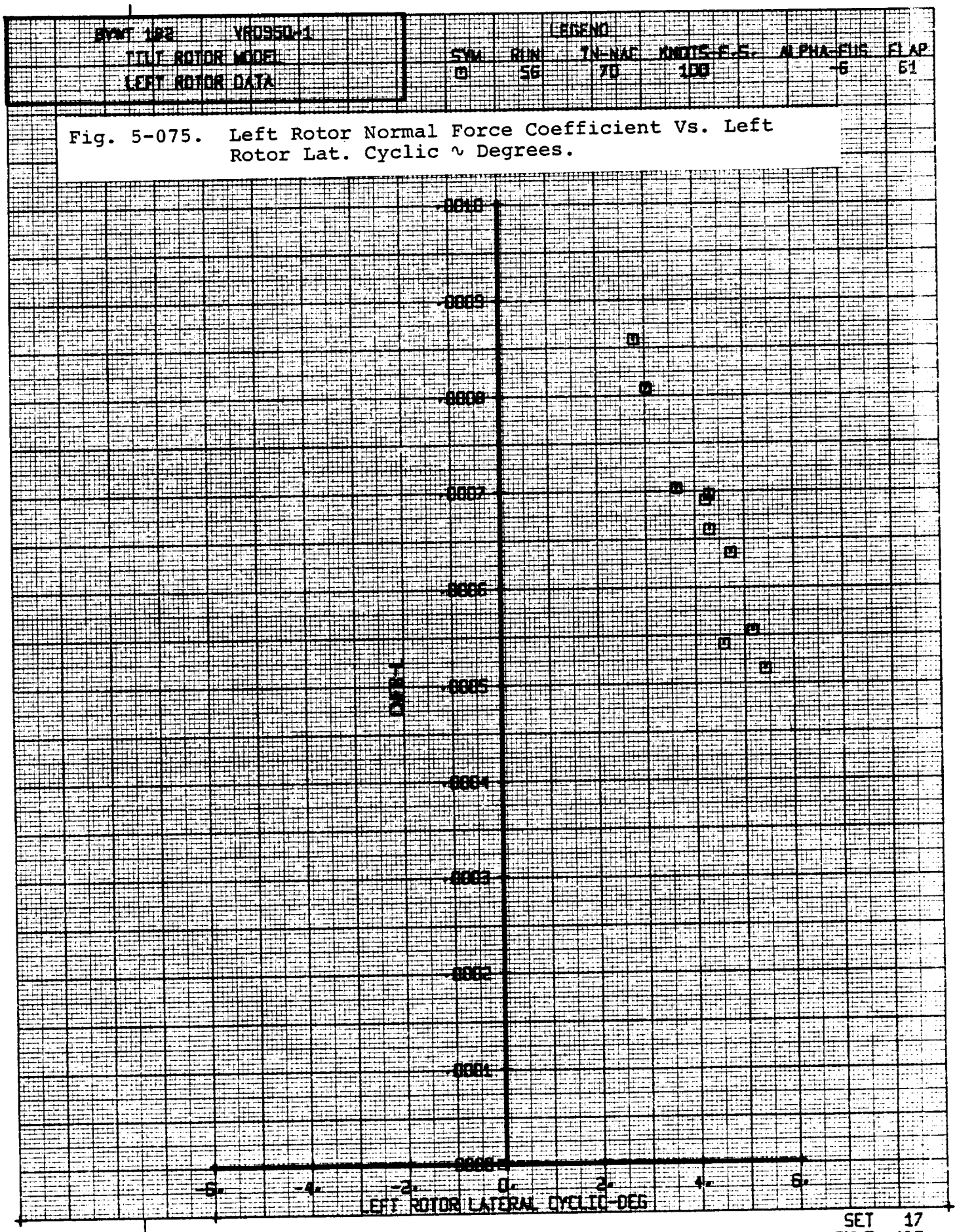


Fig. 5-075. Left Rotor Normal Force Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

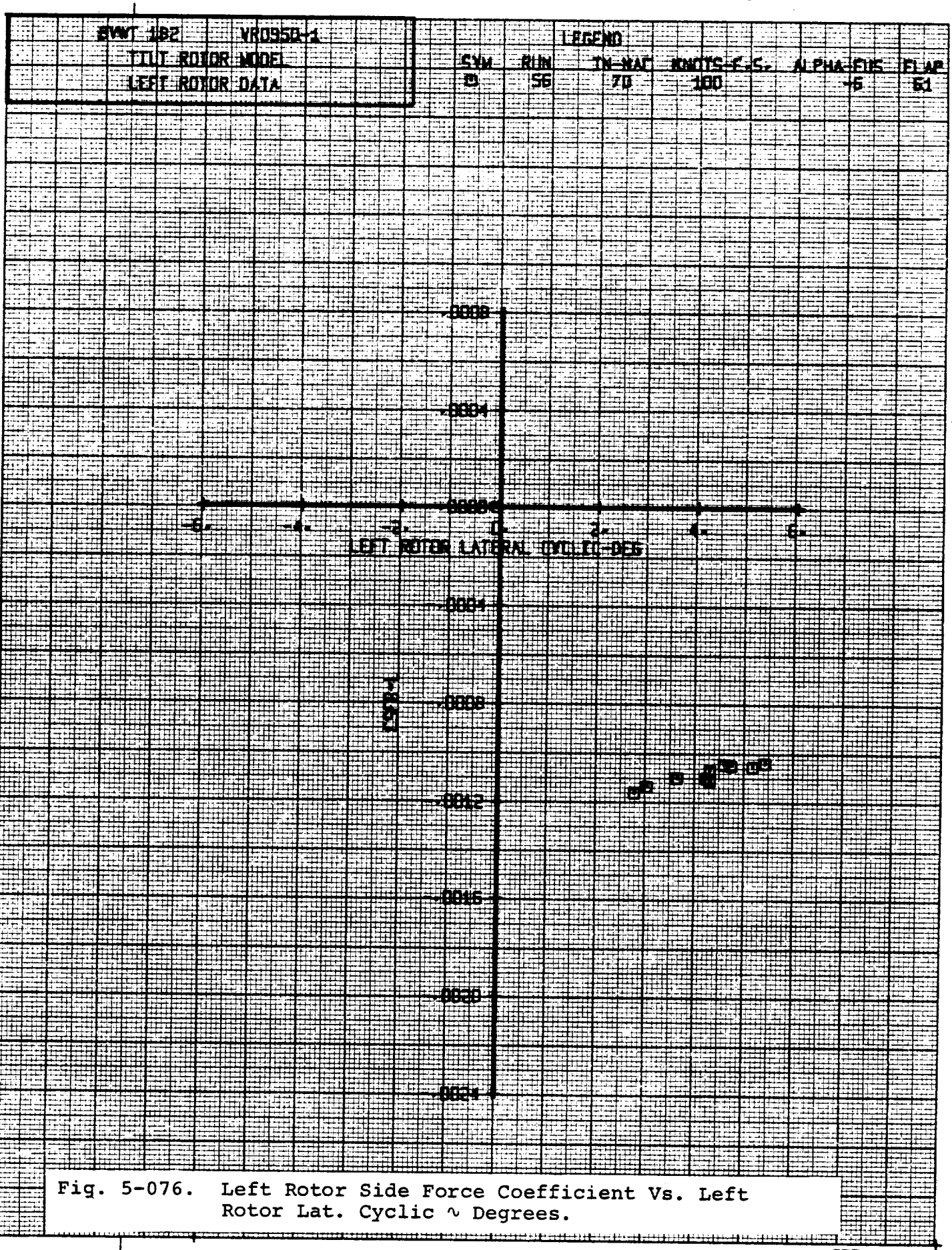


Fig. 5-076. Left Rotor Side Force Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

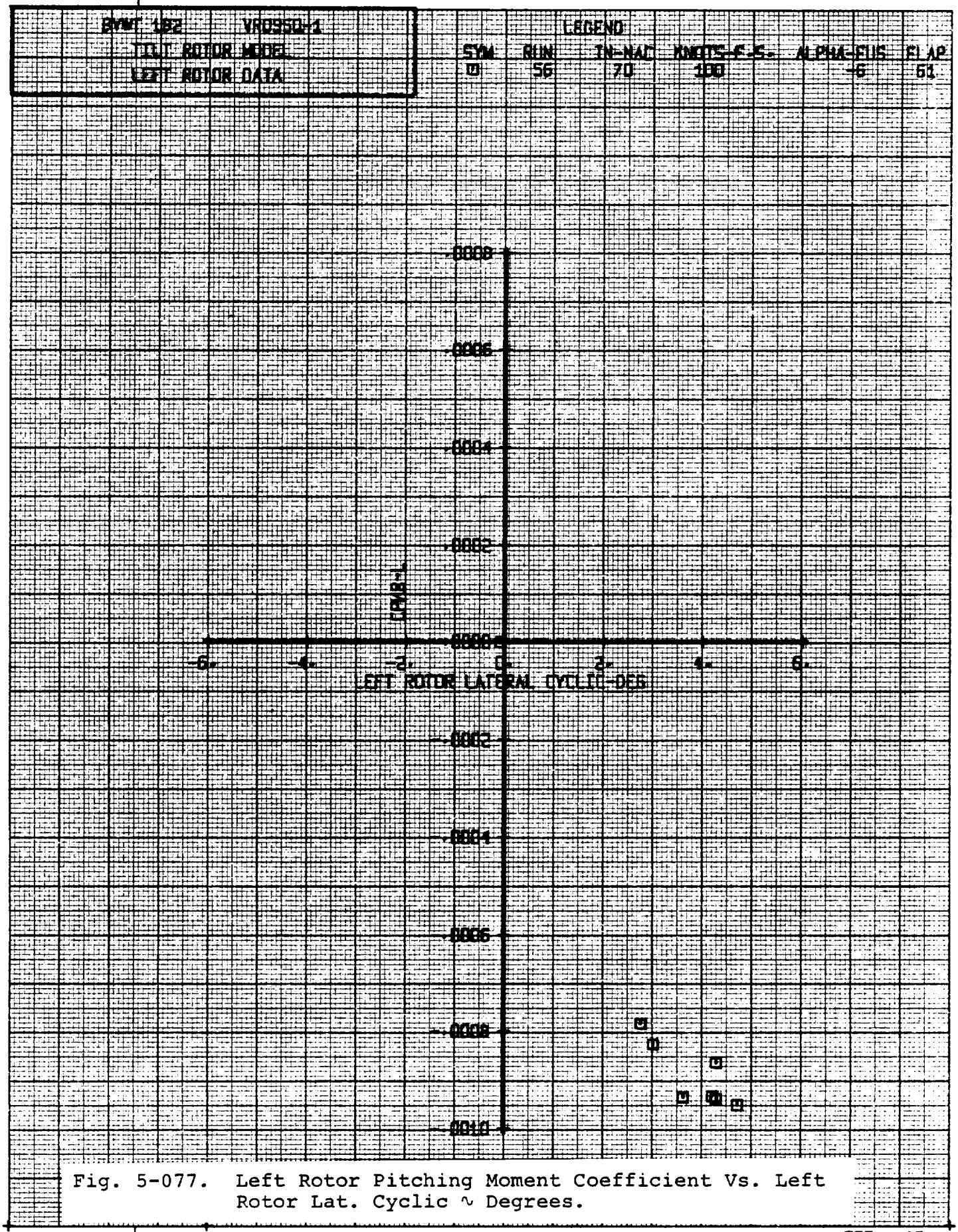


Fig. 5-077. Left Rotor Pitching Moment Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

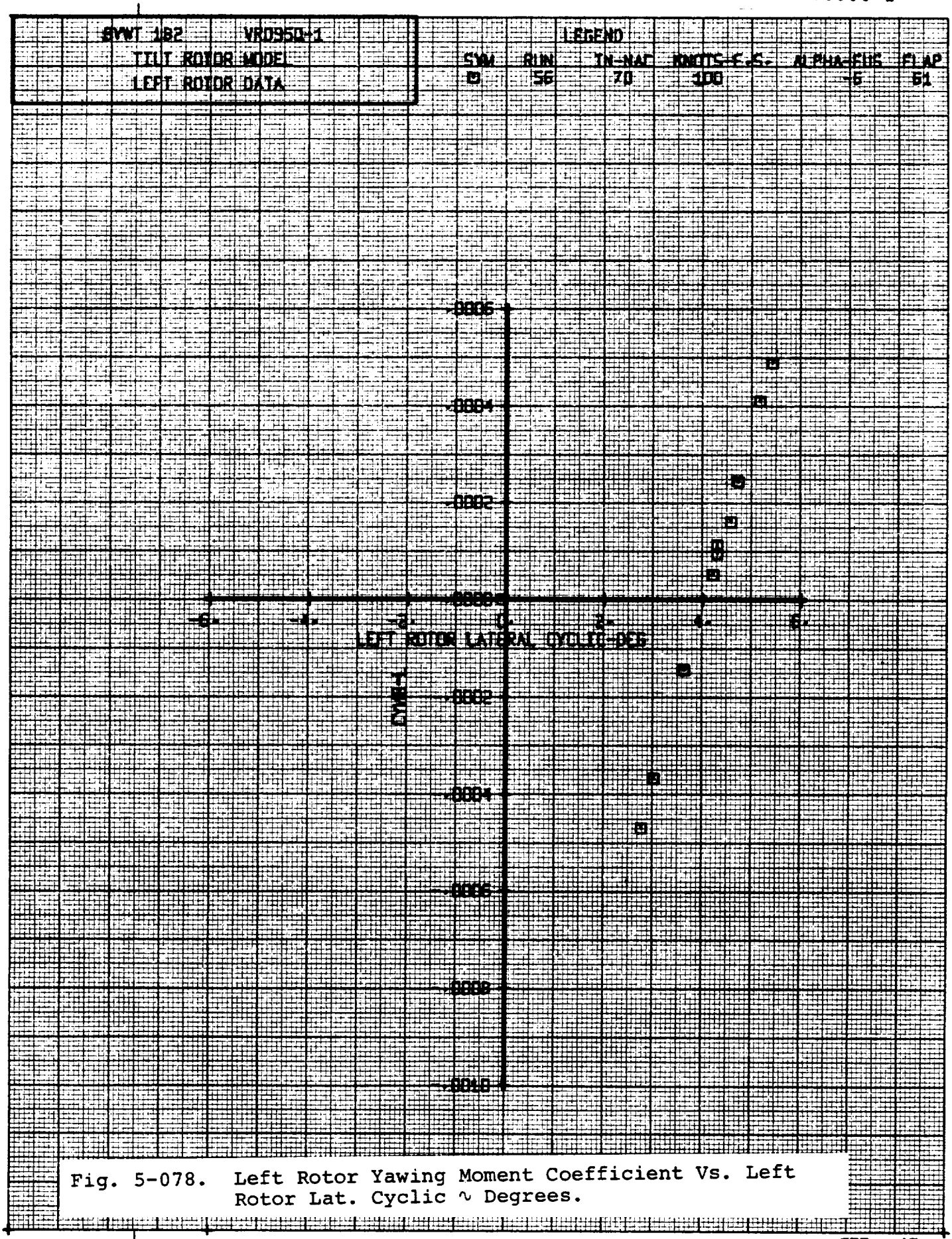


Fig. 5-078. Left Rotor Yawing Moment Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

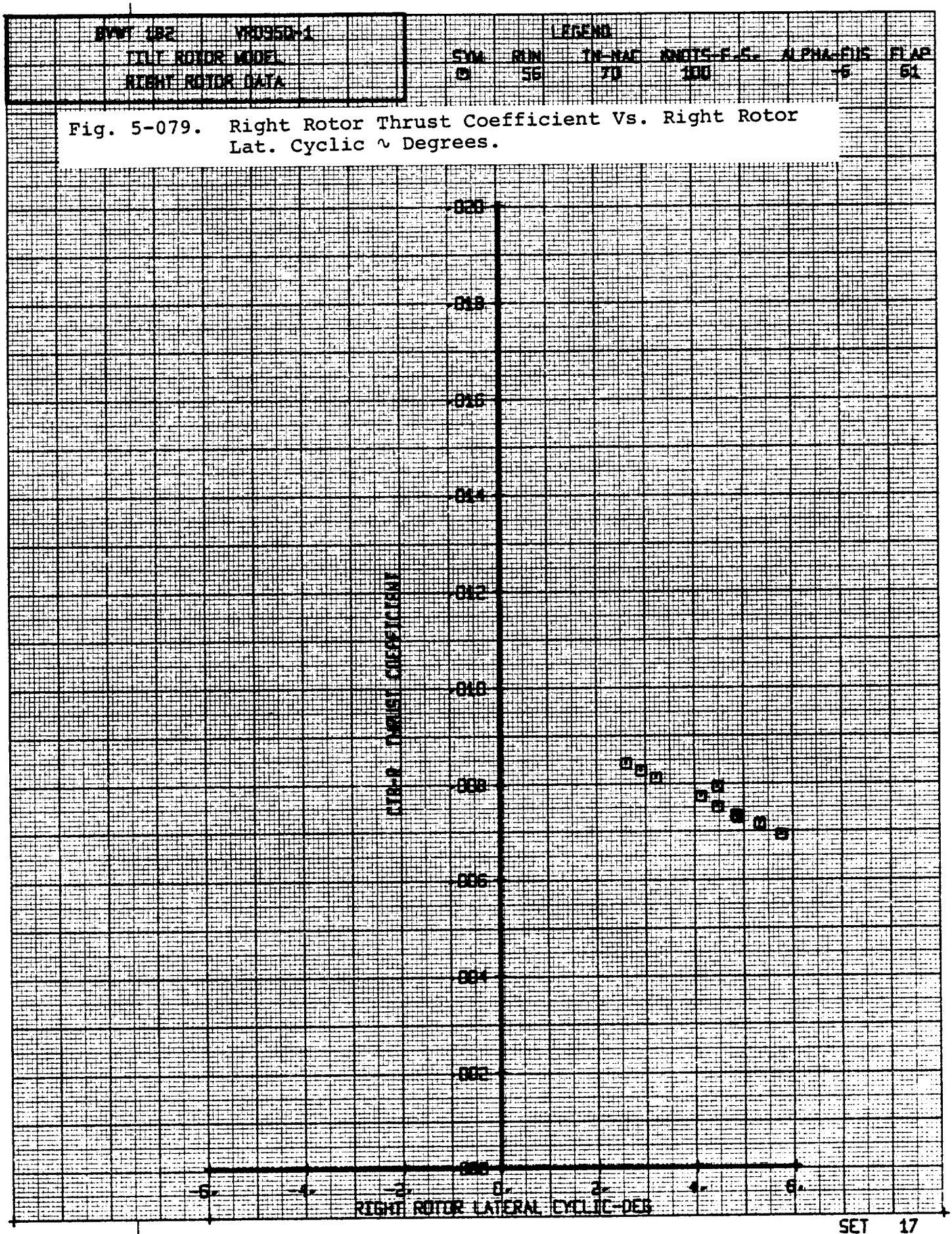


Fig. 5-079. Right Rotor Thrust Coefficient Vs. Right Rotor Lat. Cyclic ∿ Degrees.

SET 17
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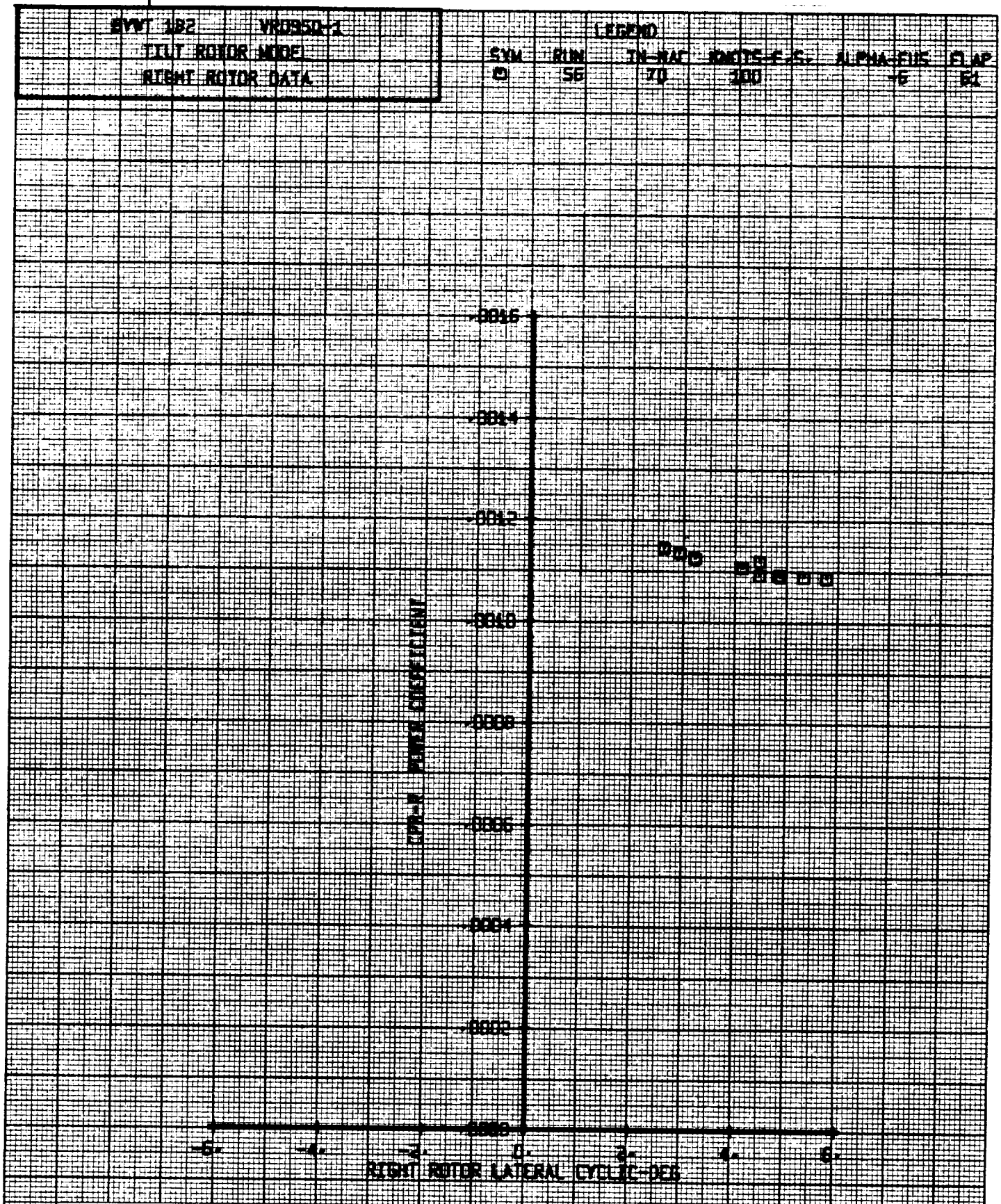


Fig. 5-080. Right Rotor Power Coefficient Vs. Right Rotor Lat. Cyclic ∿ Degrees.

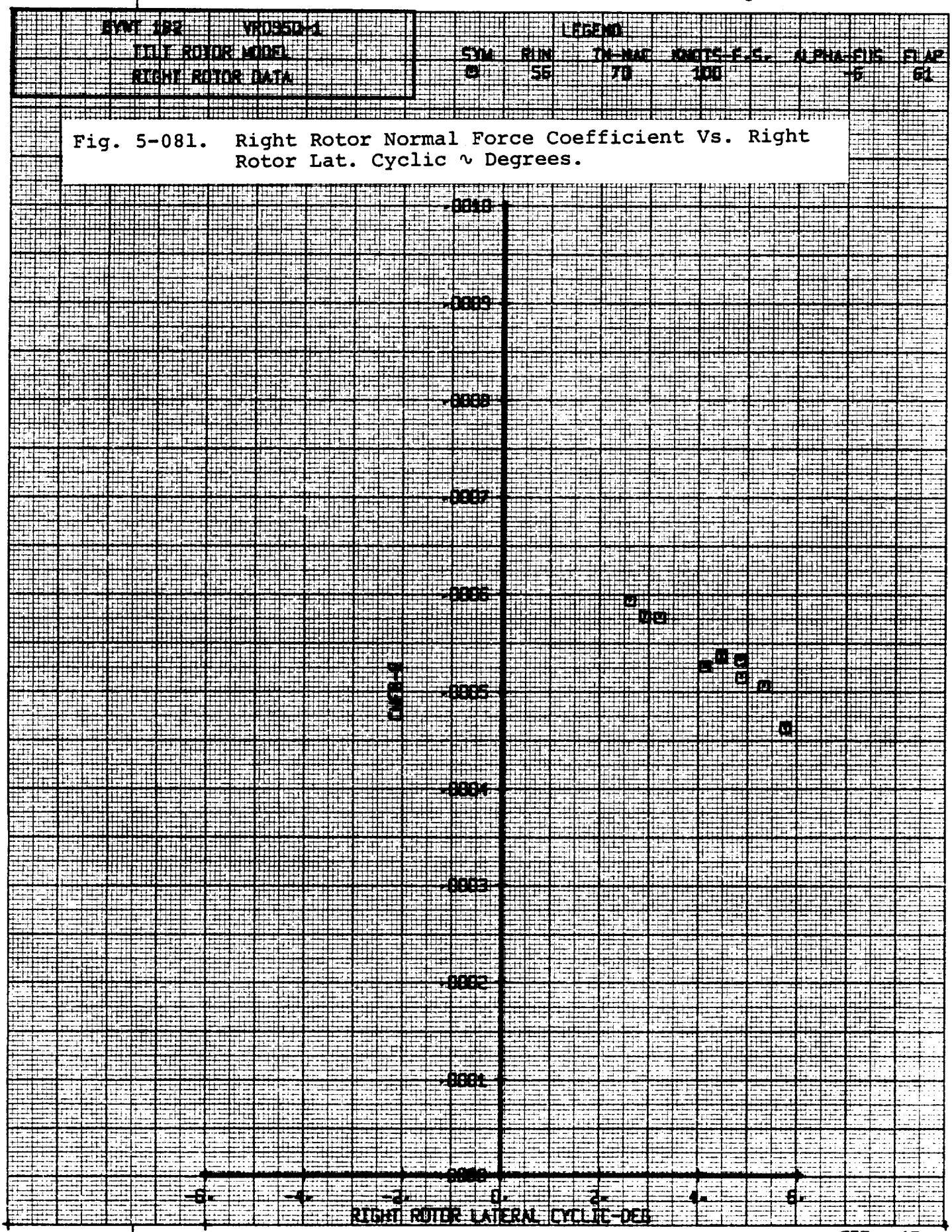


Fig. 5-081. Right Rotor Normal Force Coefficient Vs. Right Rotor Lat. Cyclic ∿ Degrees.

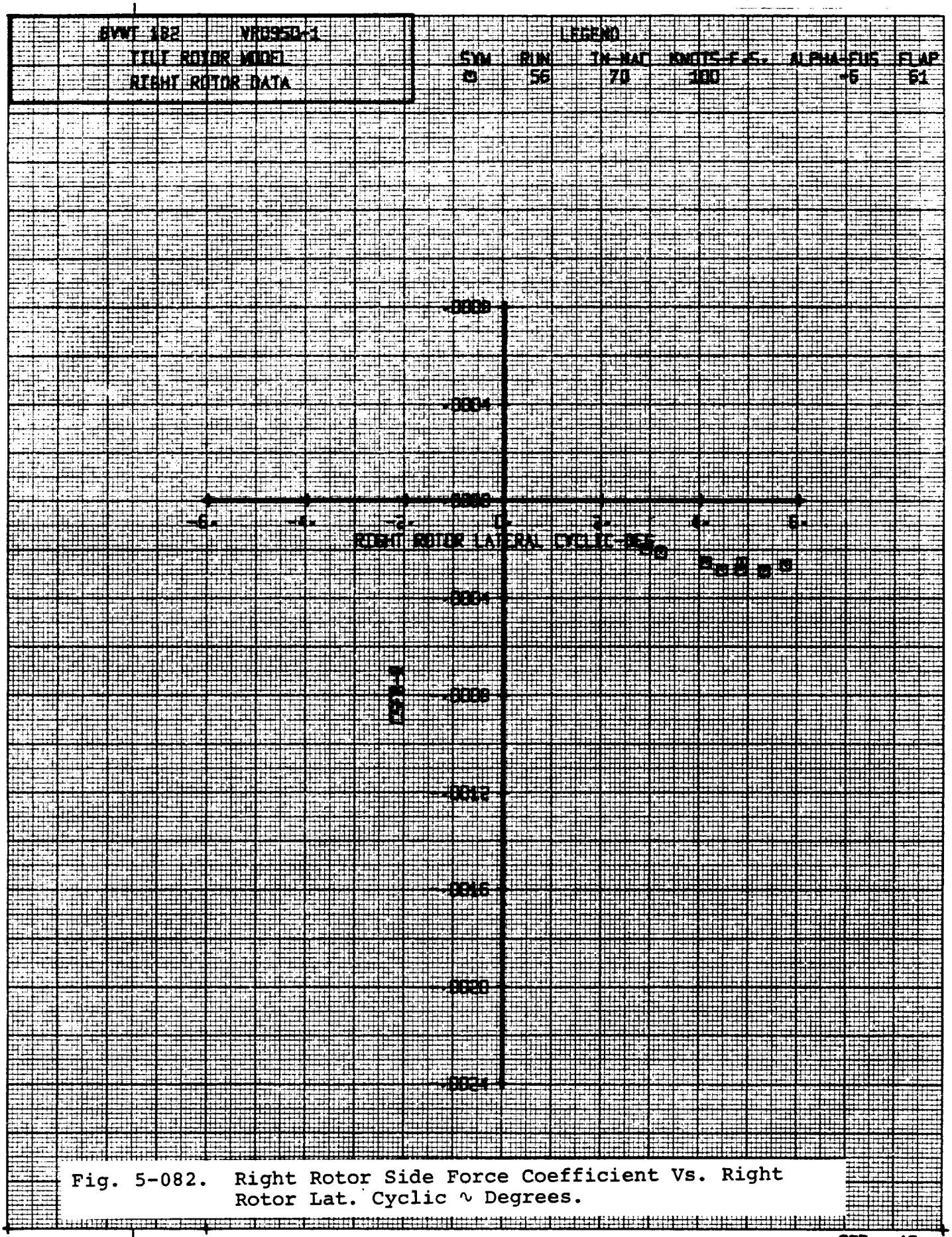


Fig. 5-082. Right Rotor Side Force Coefficient Vs. Right Rotor Lat. Cyclic ∿ Degrees.

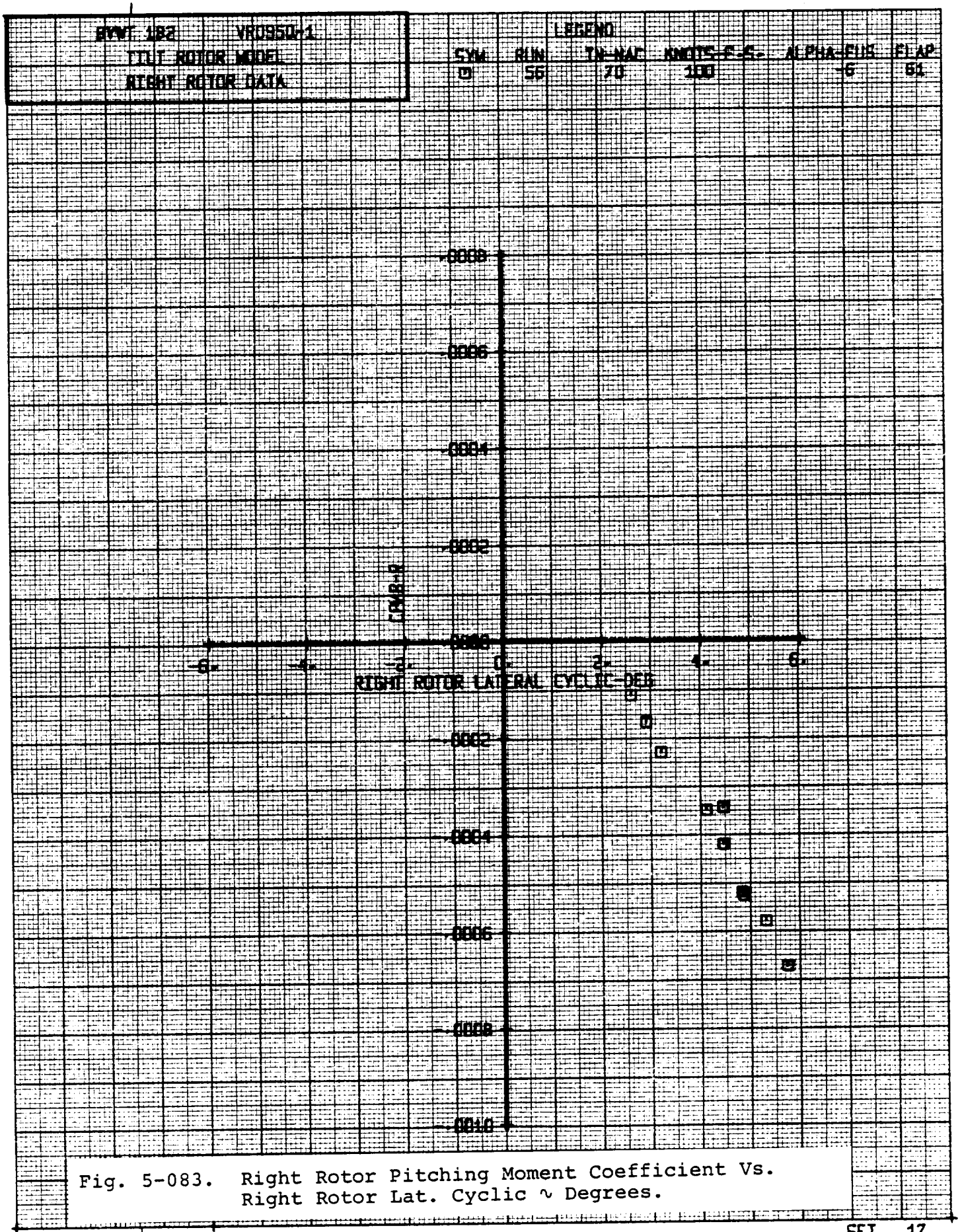


Fig. 5-083. Right Rotor Pitching Moment Coefficient Vs. Right Rotor Lat. Cyclic ∿ Degrees.

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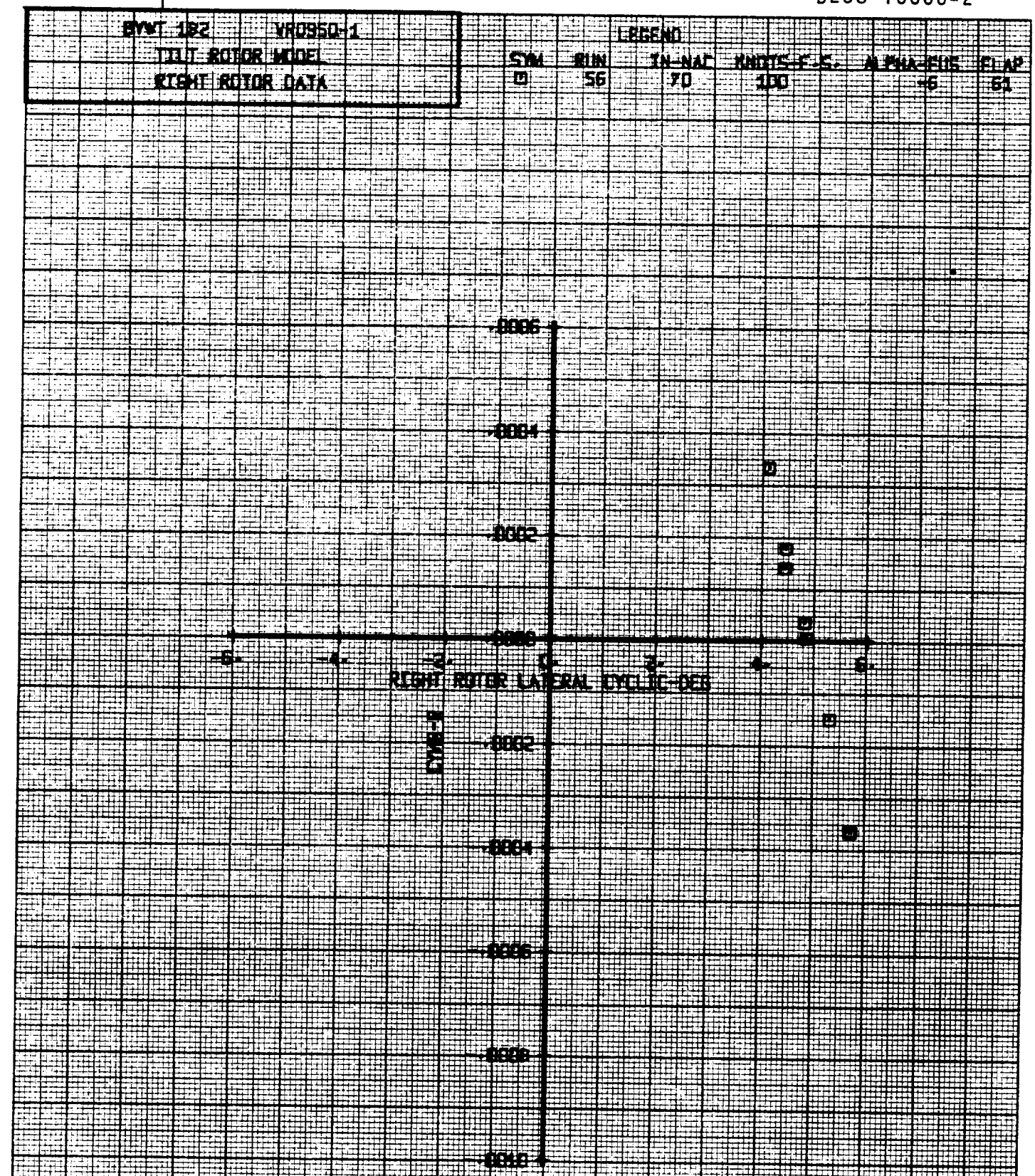


Fig. 5-084. Right Rotor Yawing Moment Coefficient Vs. Right Rotor Lat. Cyclic ∿ Degrees.

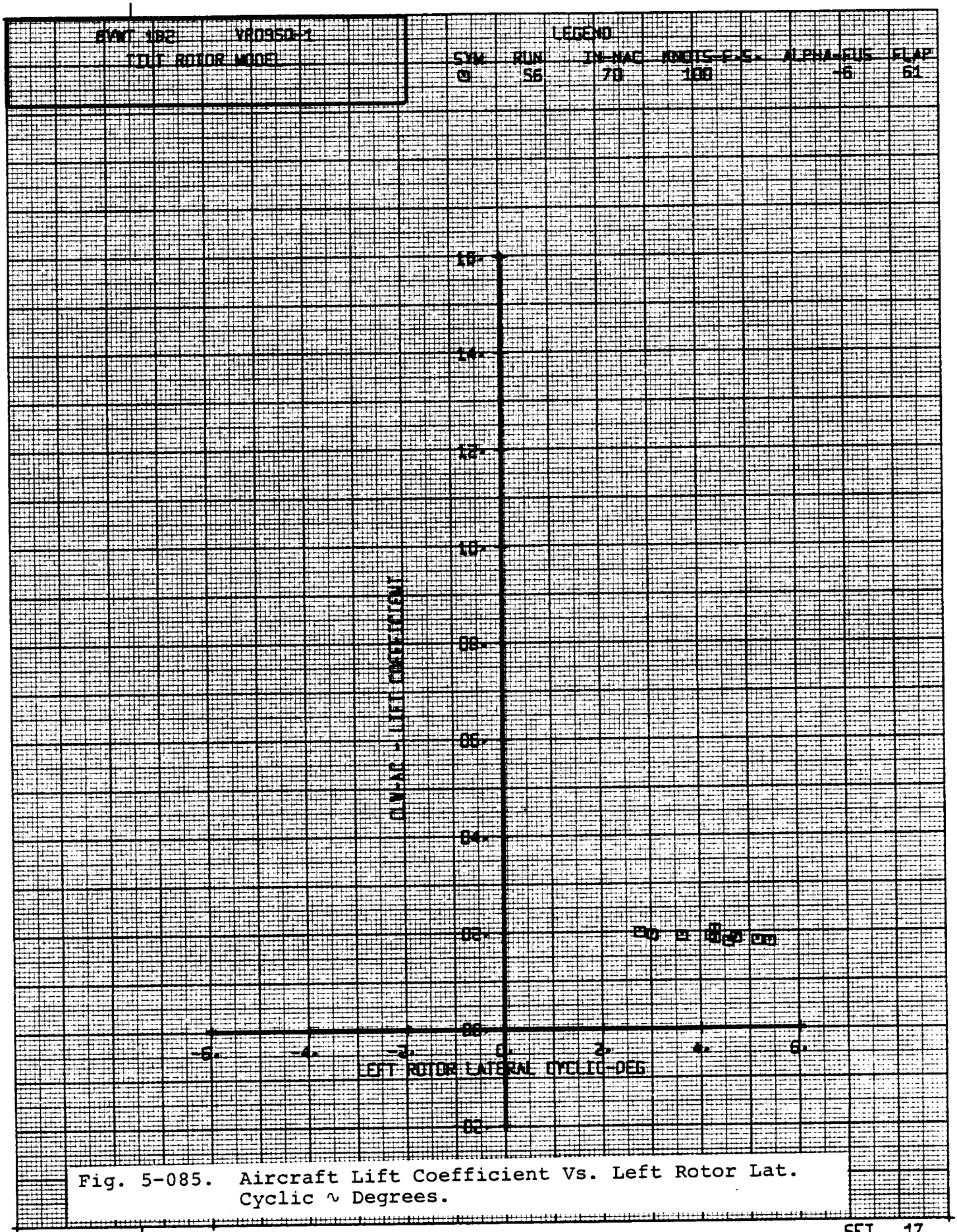


Fig. 5-085. Aircraft Lift Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

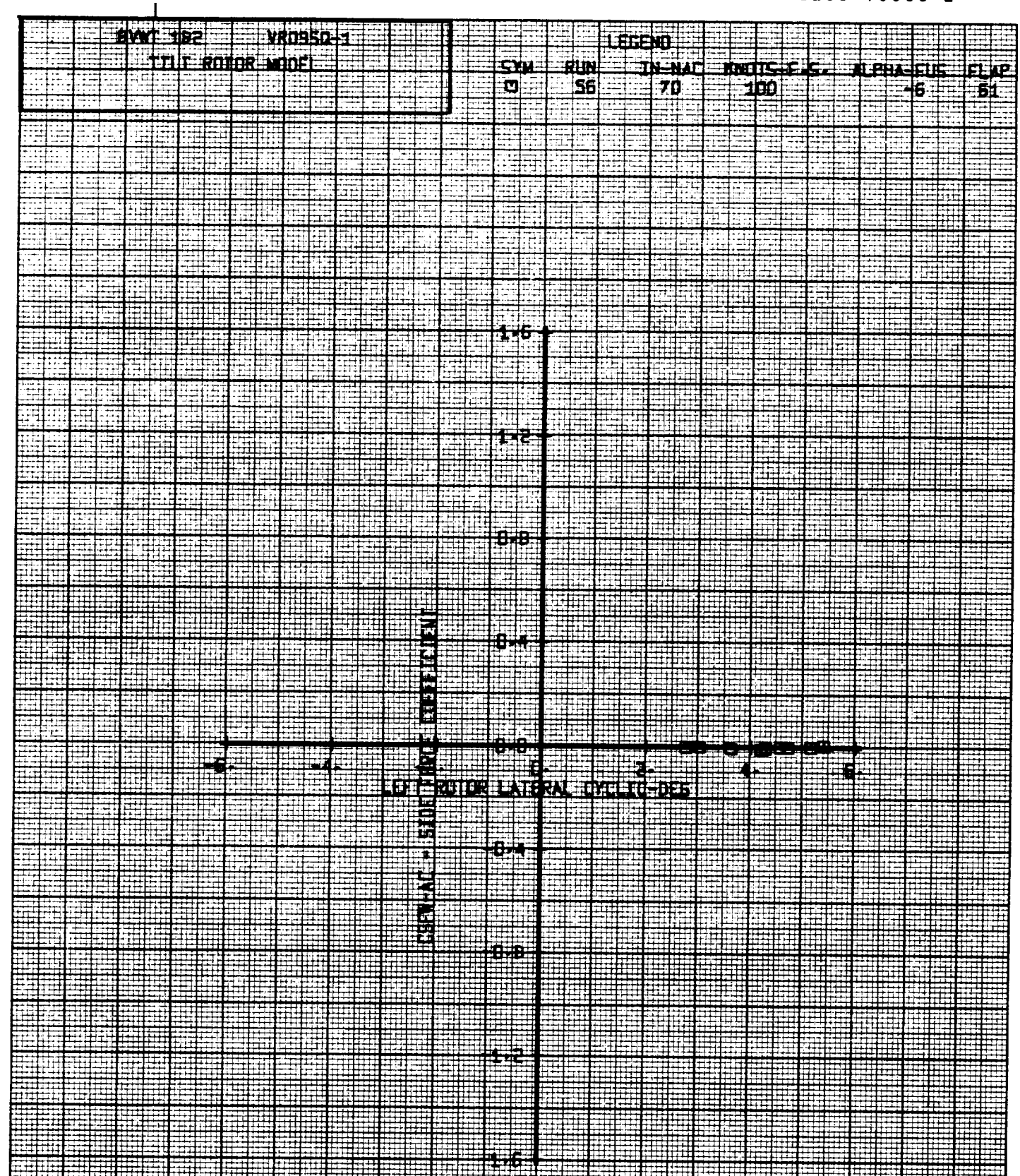


Fig. 5-086. Aircraft Side Force Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

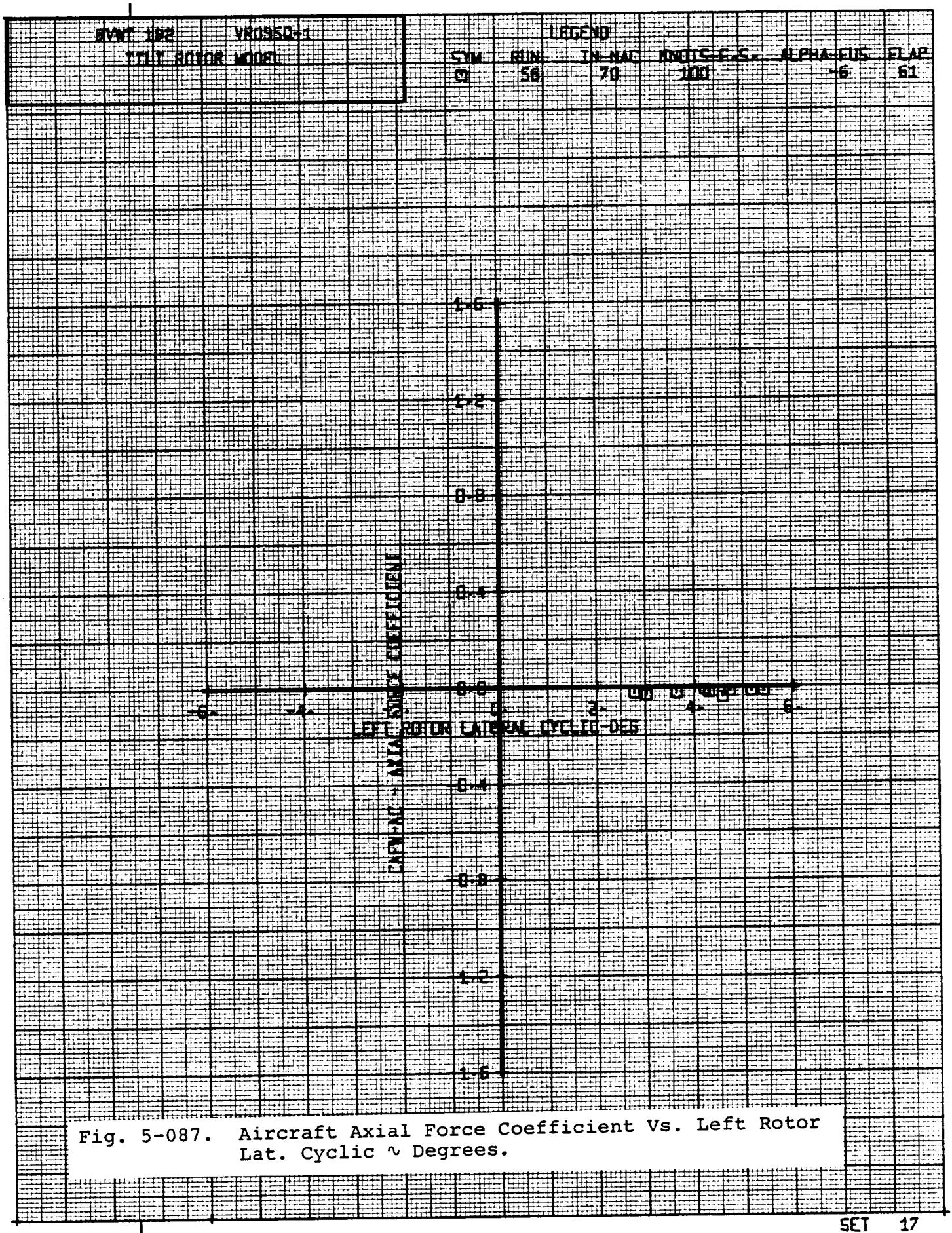


Fig. 5-087. Aircraft Axial Force Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

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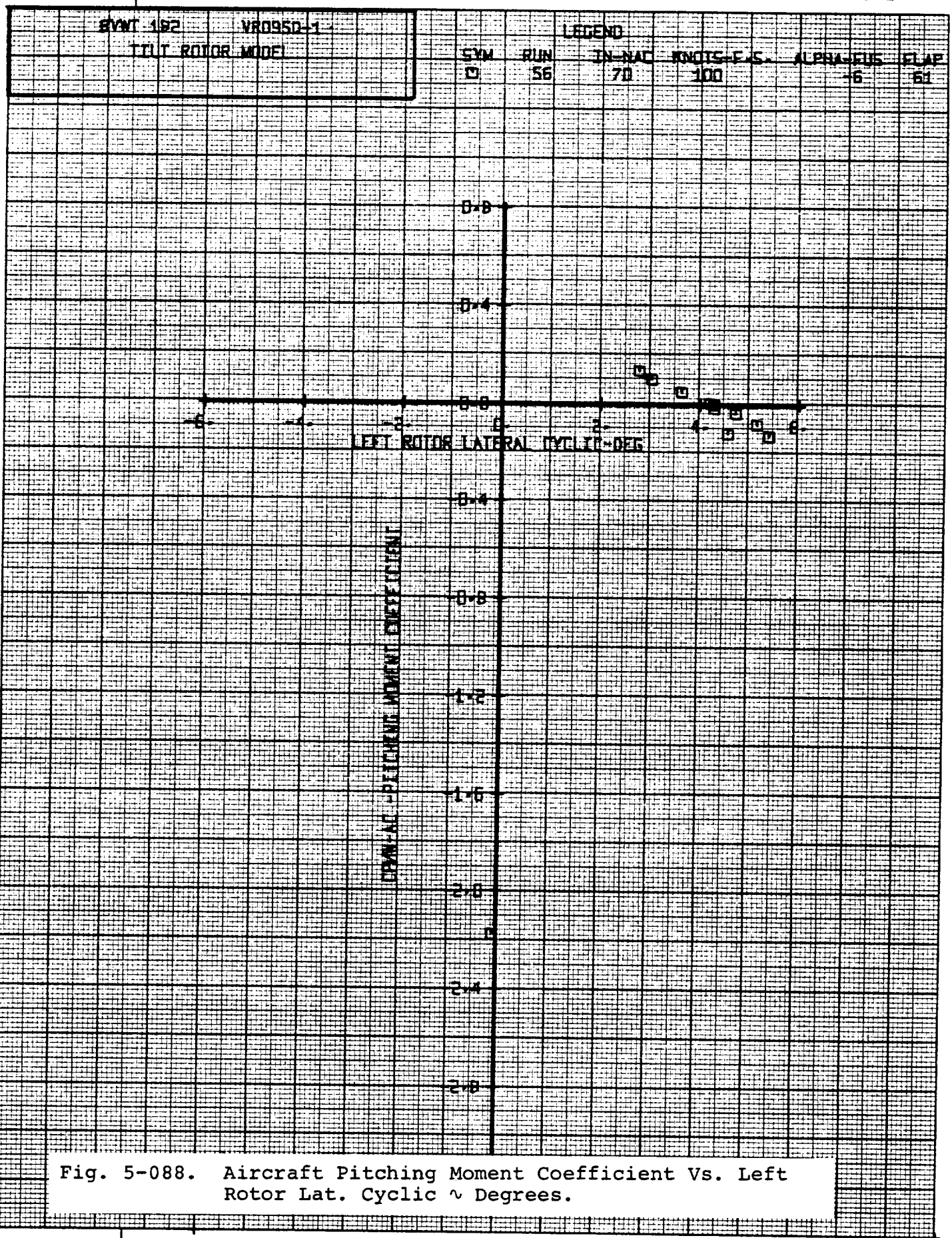


Fig. 5-088. Aircraft Pitching Moment Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

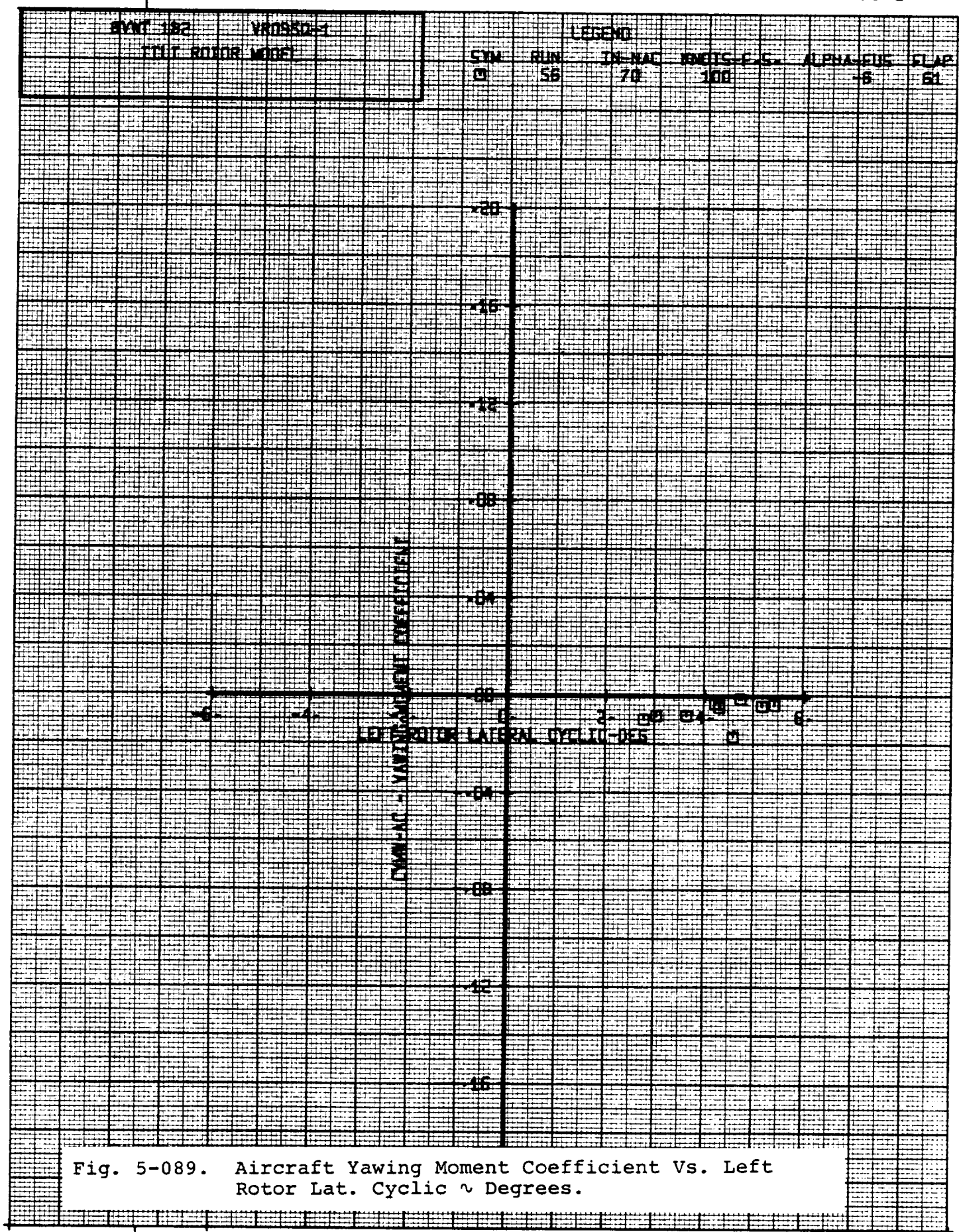


Fig. 5-089. Aircraft Yawing Moment Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

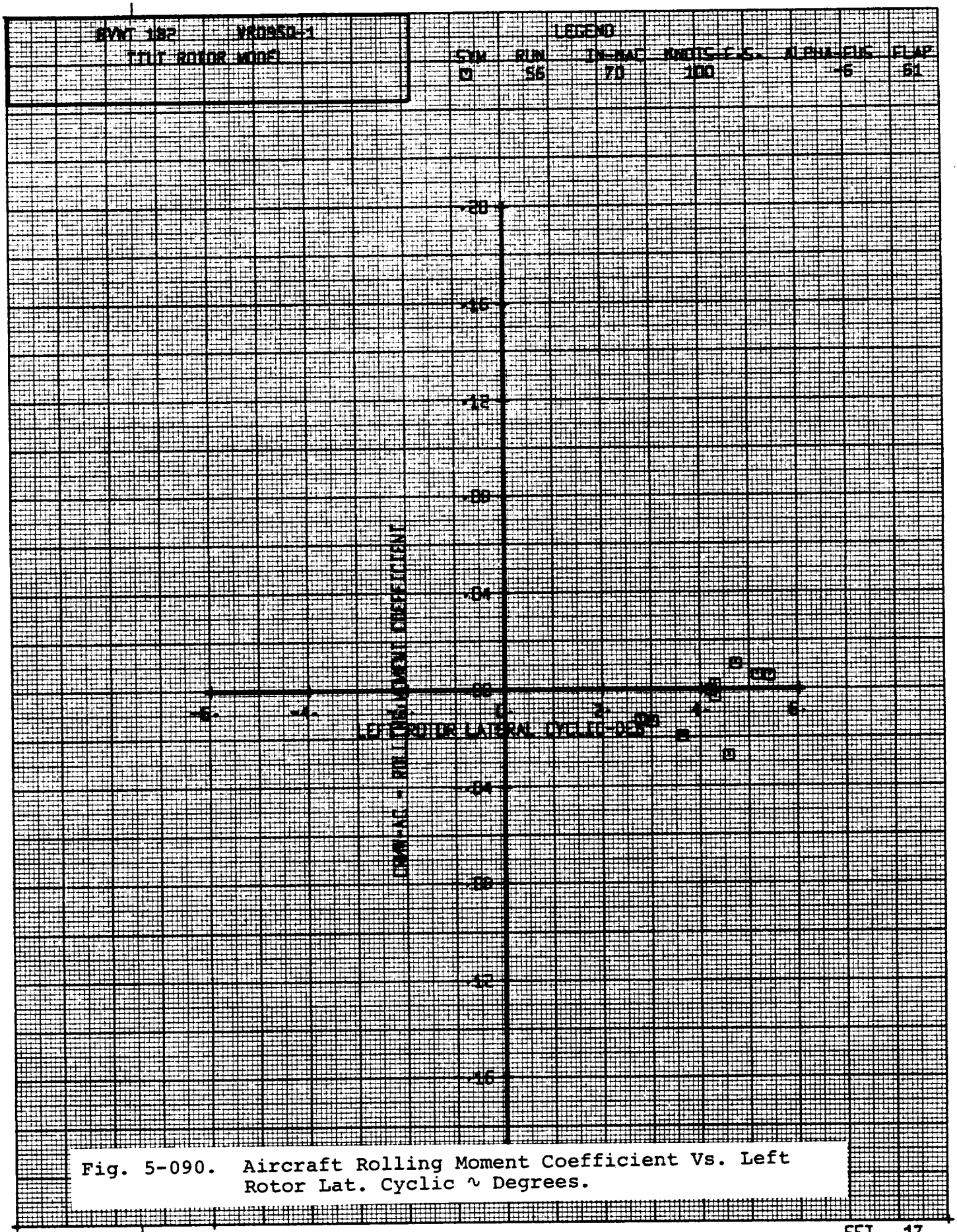


Fig. 5-090. Aircraft Rolling Moment Coefficient Vs. Left Rotor Lat. Cyclic ∿ Degrees.

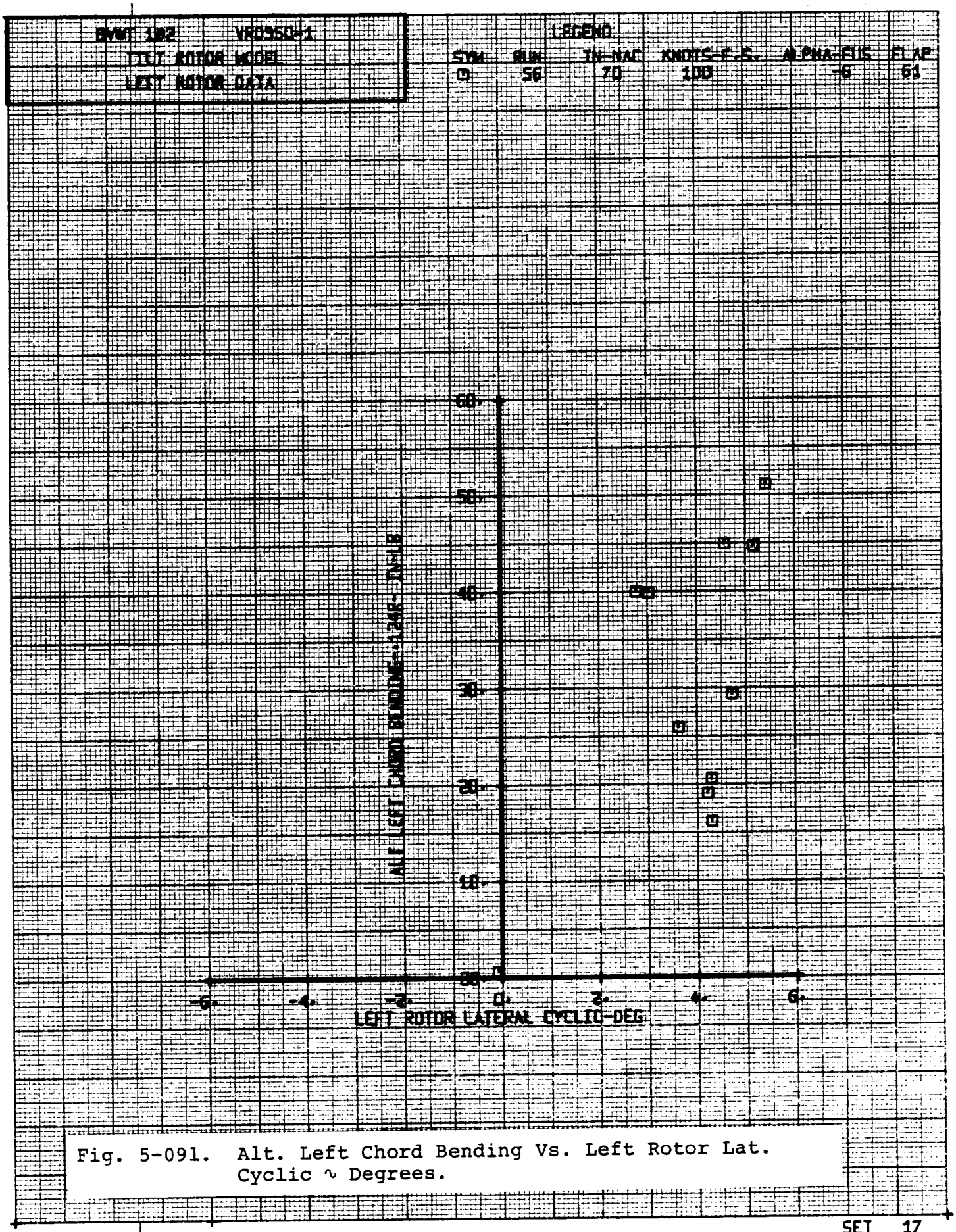


Fig. 5-091. Alt. Left Chord Bending Vs. Left Rotor Lat. Cyclic ∿ Degrees.

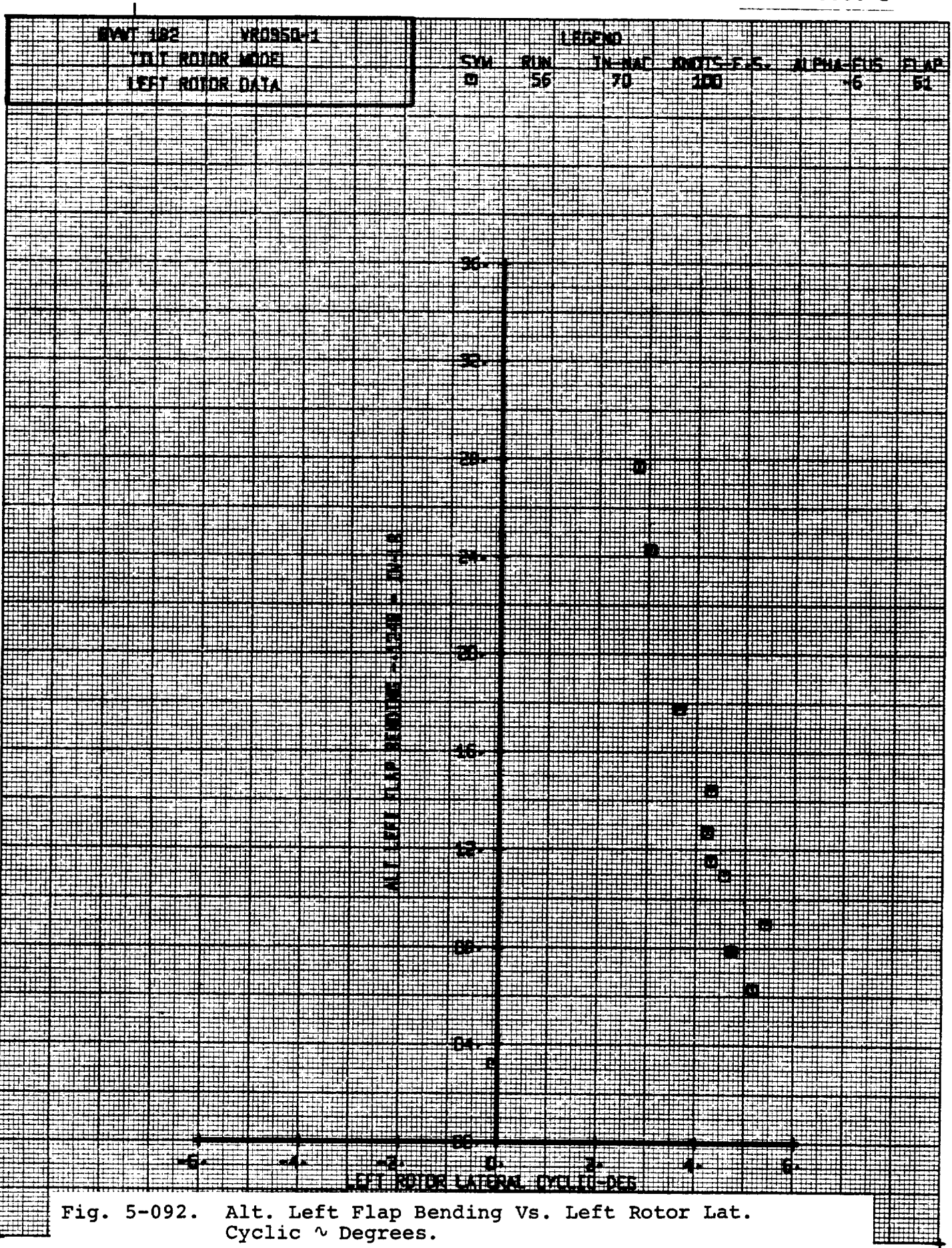


Fig. 5-092. Alt. Left Flap Bending Vs. Left Rotor Lat. Cyclic ∿ Degrees.

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182

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BVWT 182

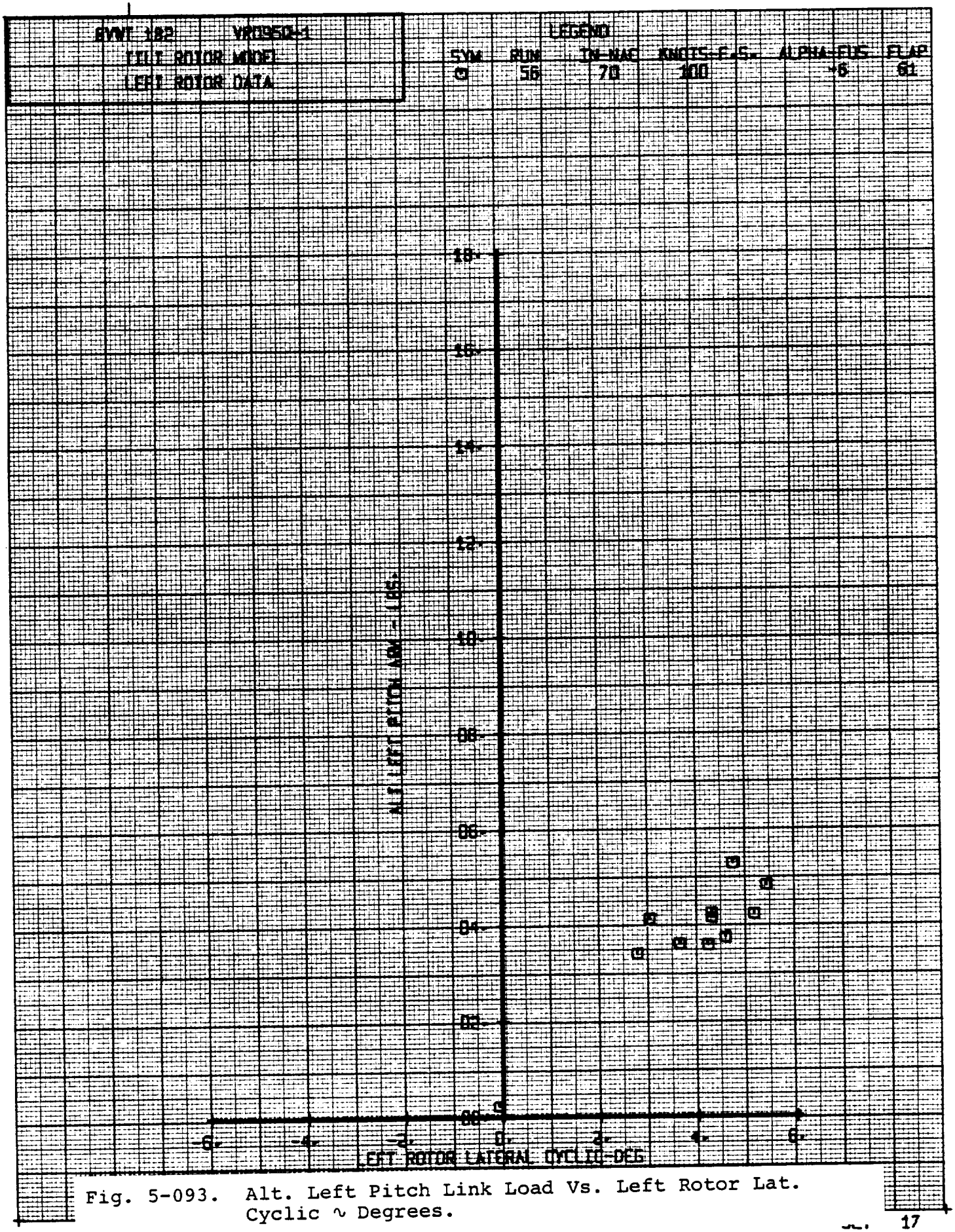


Fig. 5-093. Alt. Left Pitch Link Load Vs. Left Rotor Lat. Cyclic ∿ Degrees.

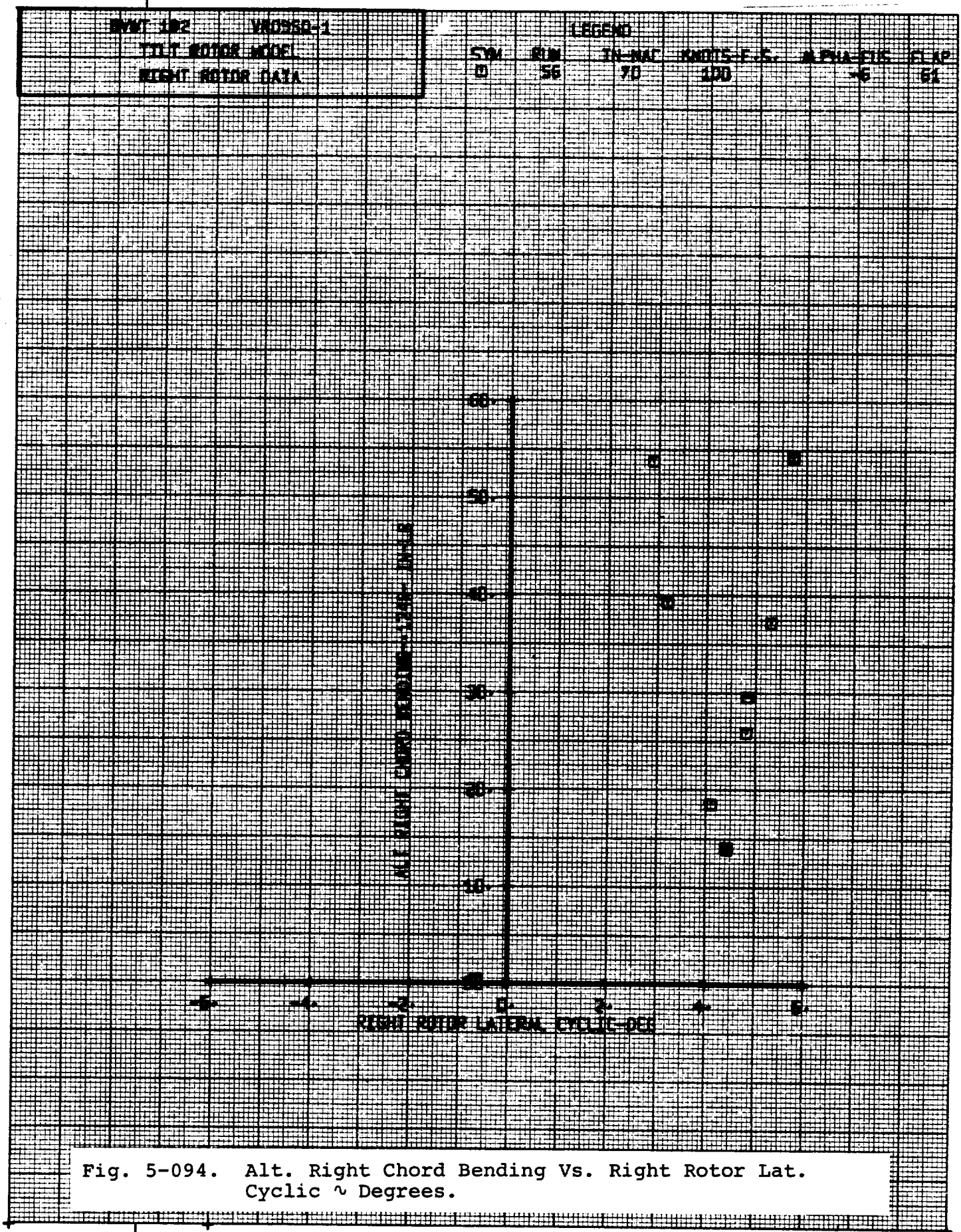


Fig. 5-094. Alt. Right Chord Bending Vs. Right Rotor Lat. Cyclic ∿ Degrees.

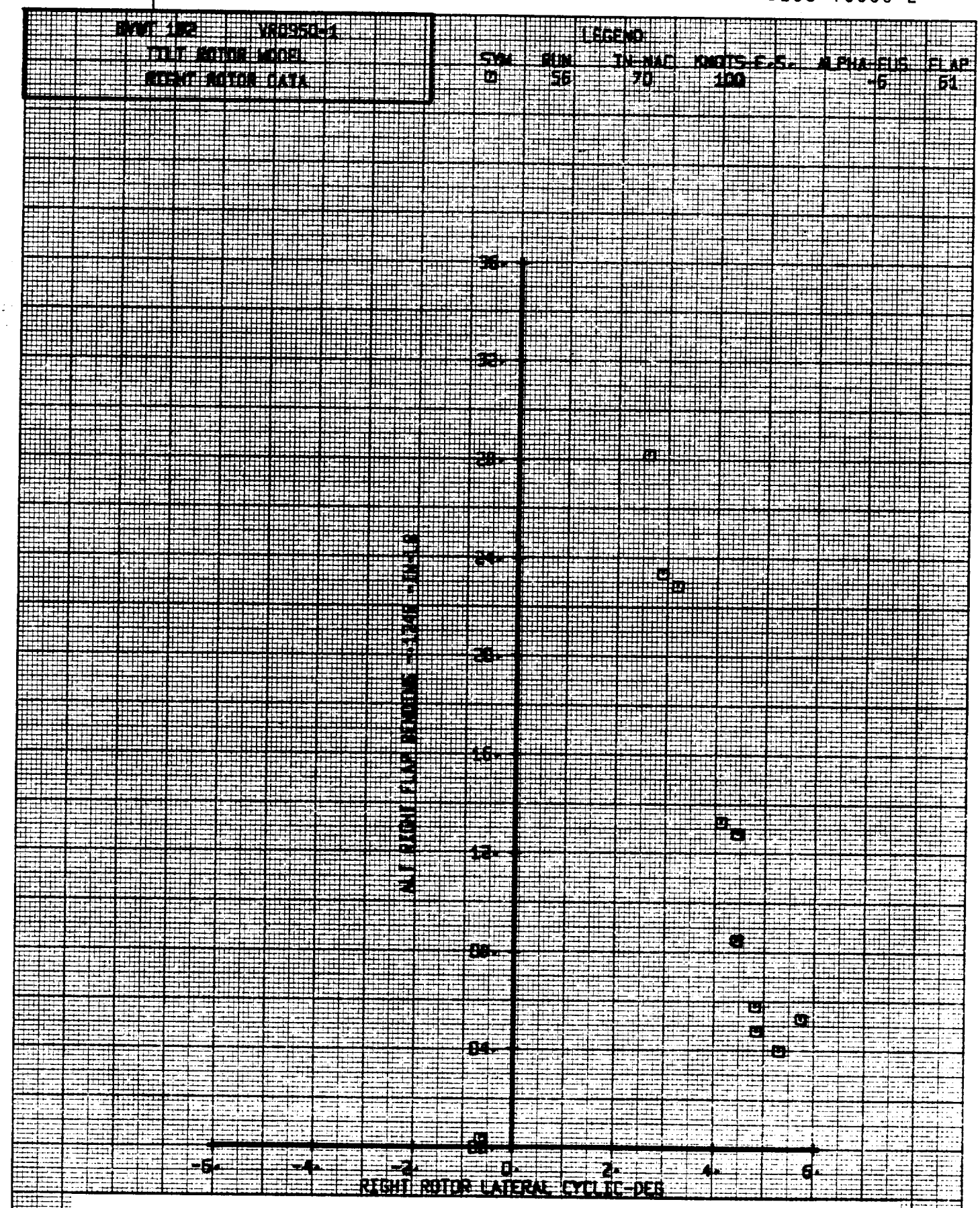


Fig. 5-095. Alt. Right Flap Bending Vs. Right Rotor Lat. Cyclic ∿ Degrees.

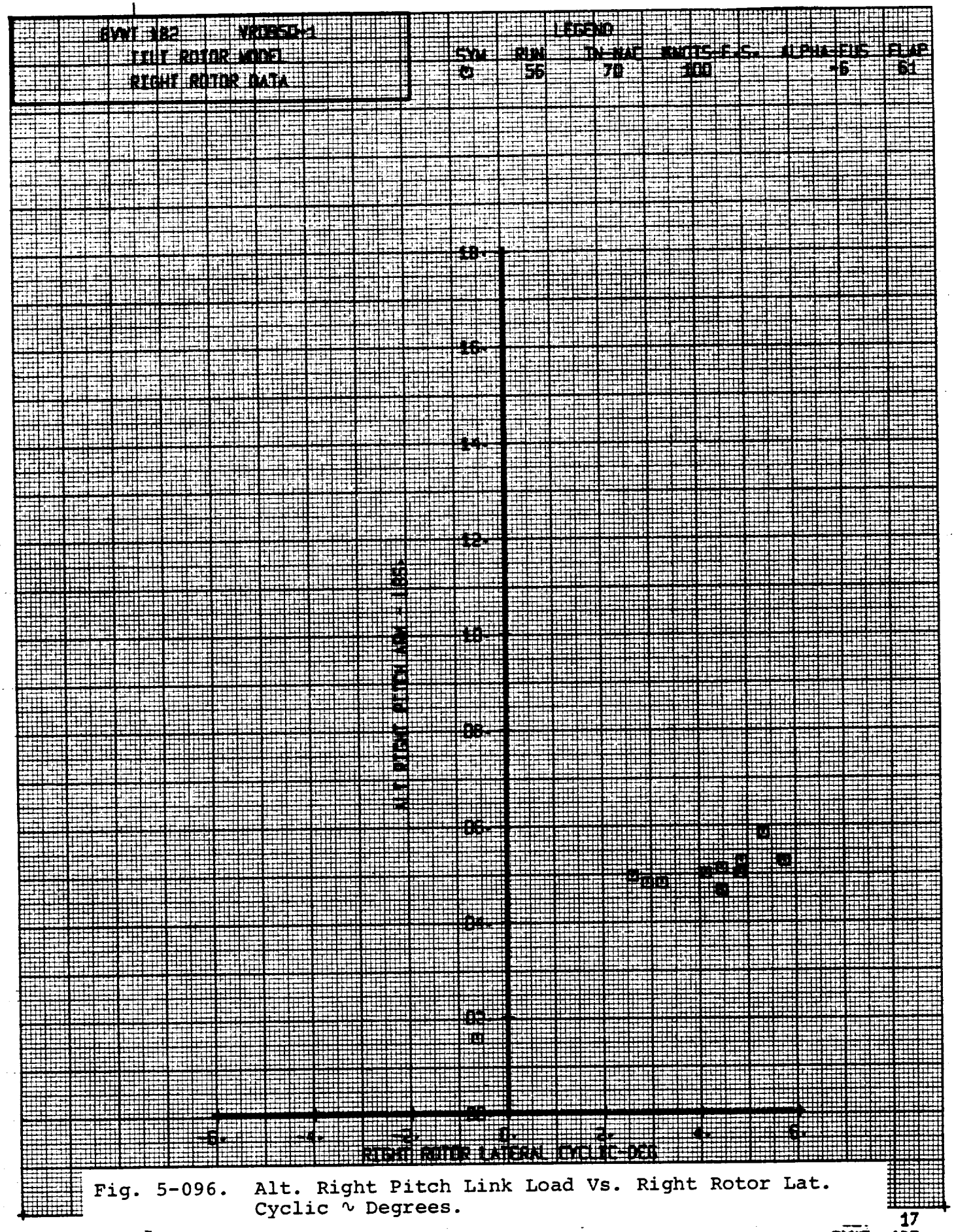


Fig. 5-096. Alt. Right Pitch Link Load Vs. Right Rotor Lat. Cyclic ∿ Degrees.

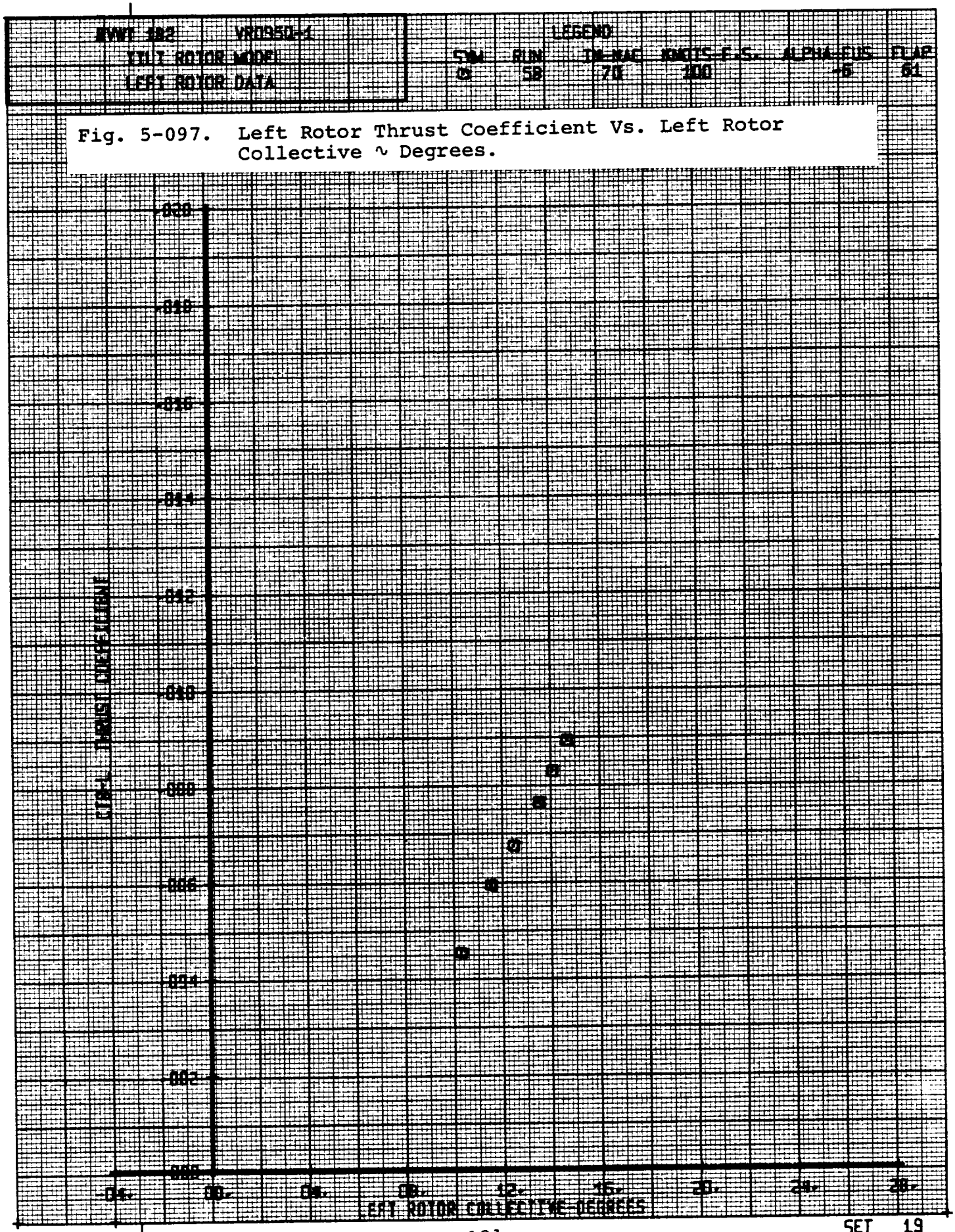


Fig. 5-097. Left Rotor Thrust Coefficient Vs. Left Rotor Collective ∿ Degrees.

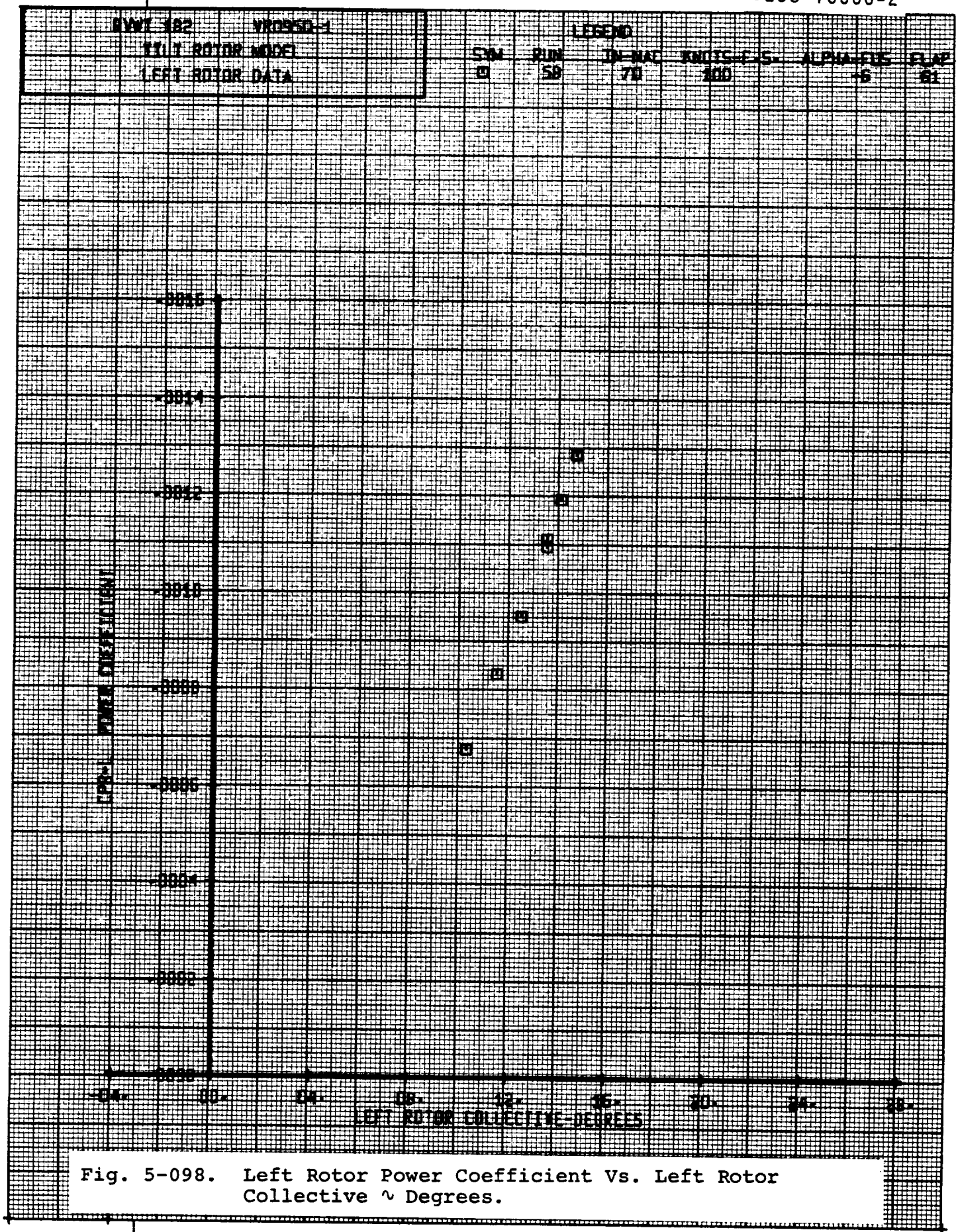


Fig. 5-098. Left Rotor Power Coefficient Vs. Left Rotor Collective ∿ Degrees.

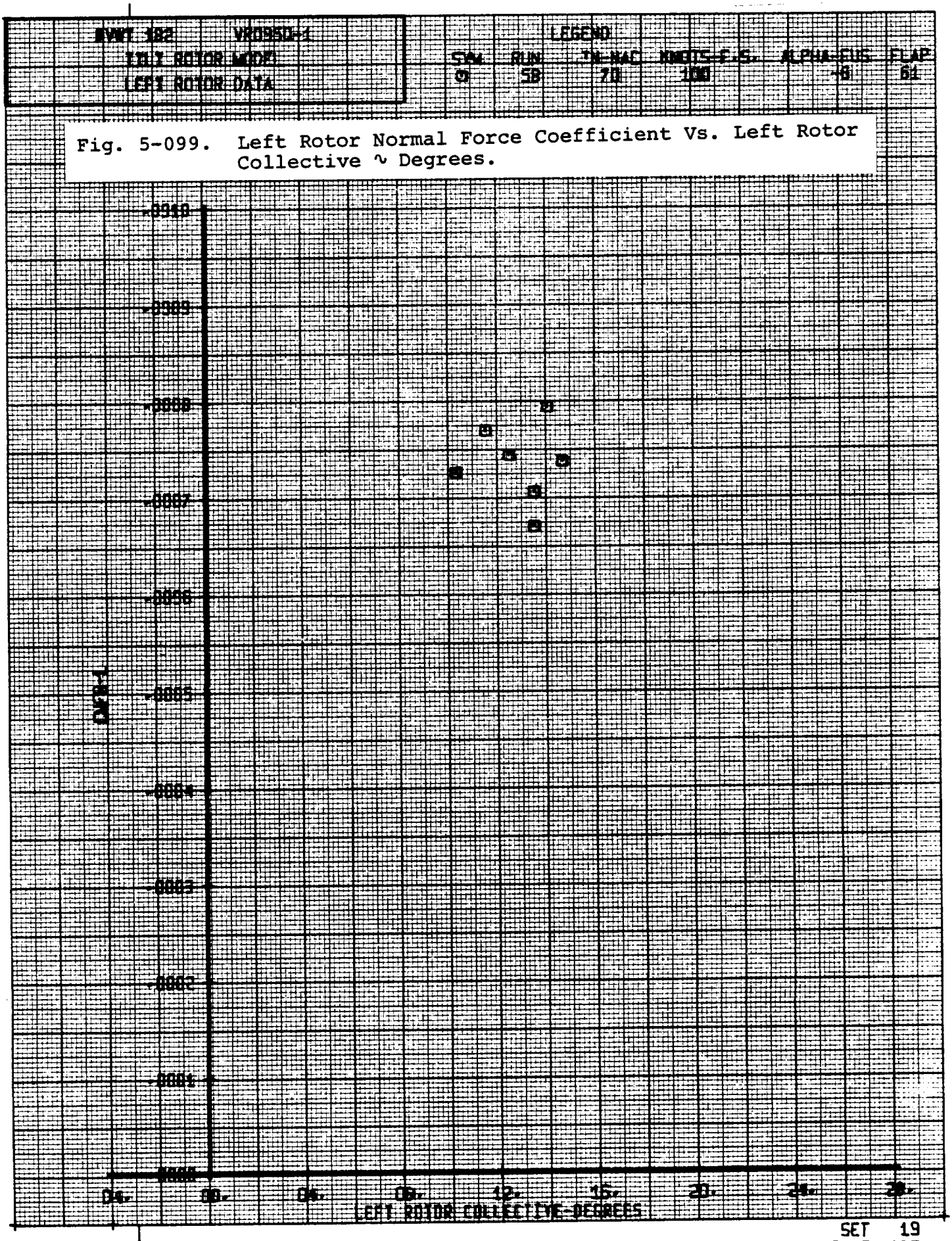


Fig. 5-099. Left Rotor Normal Force Coefficient Vs. Left Rotor Collective ∿ Degrees.

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BVWT 182

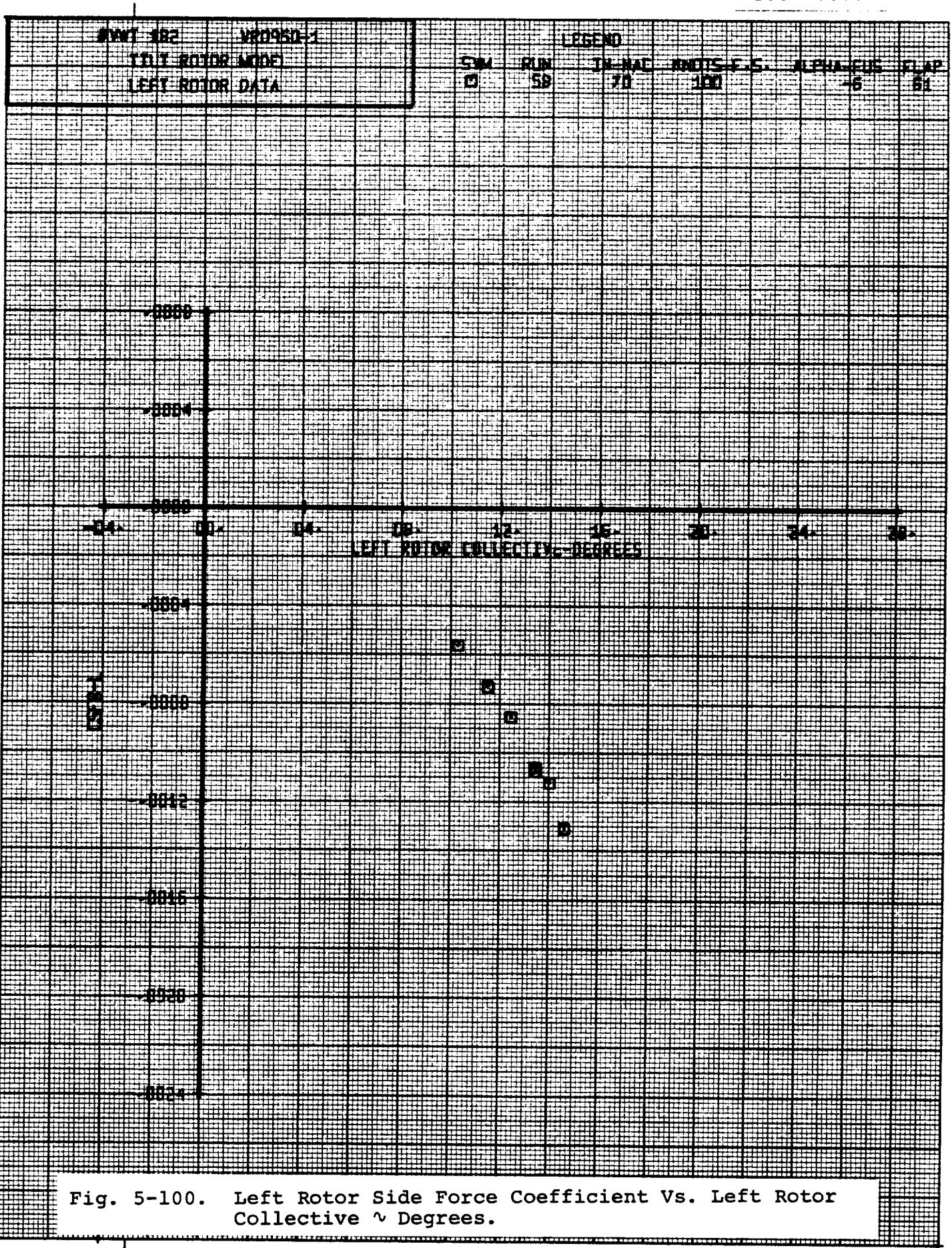


Fig. 5-100. Left Rotor Side Force Coefficient Vs. Left Rotor Collective ∿ Degrees.

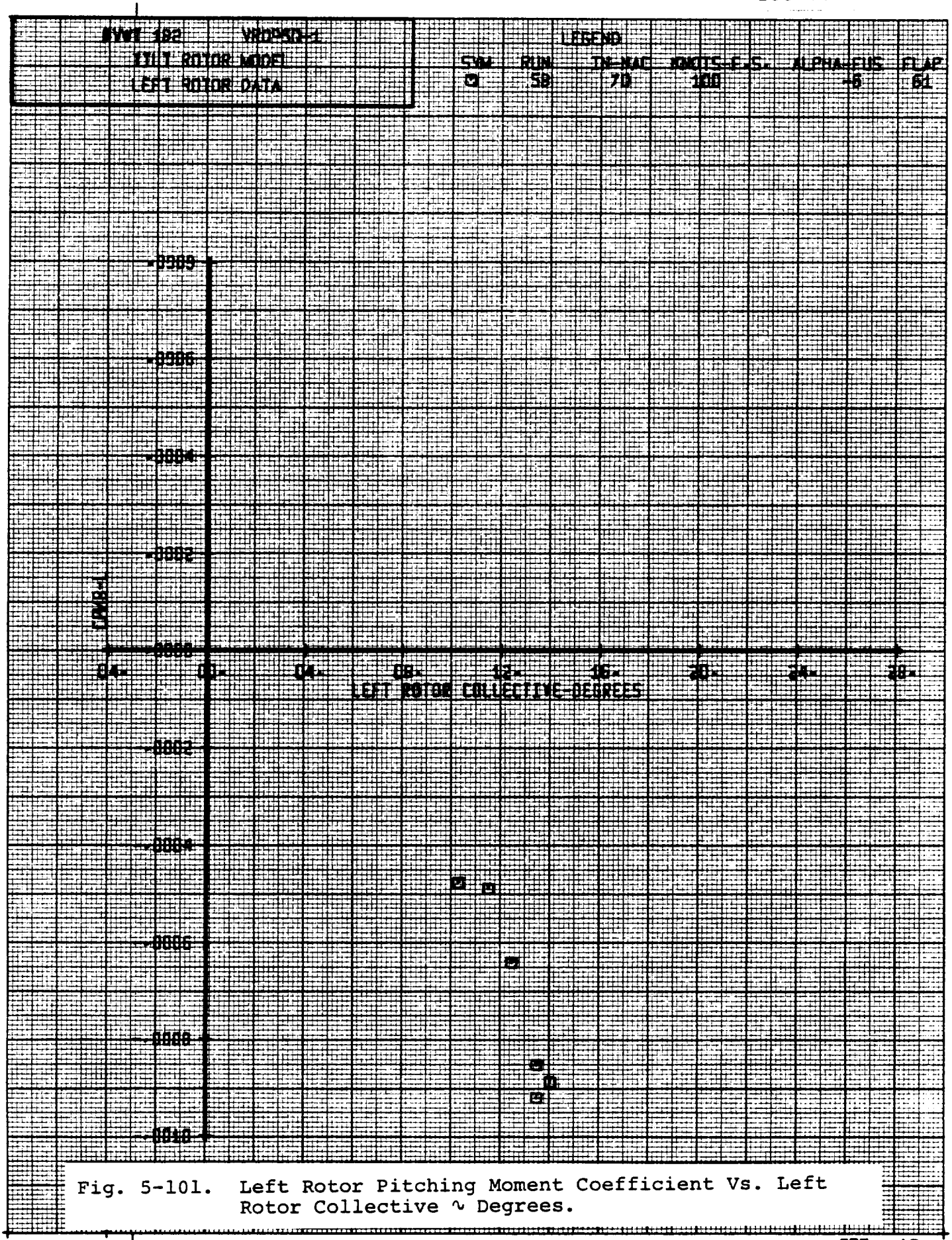


Fig. 5-101. Left Rotor Pitching Moment Coefficient Vs. Left Rotor Collective ∿ Degrees.

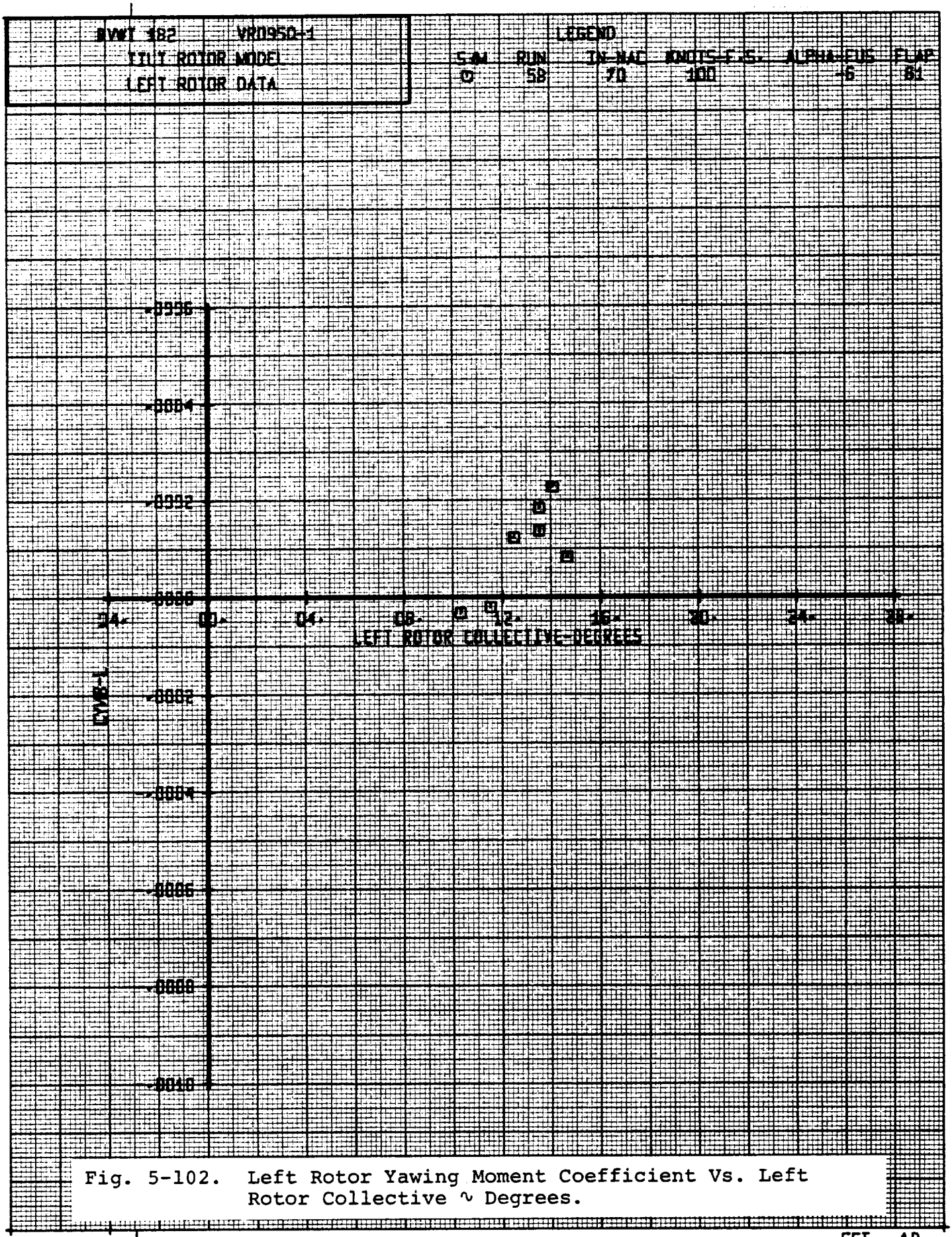


Fig. 5-102. Left Rotor Yawing Moment Coefficient Vs. Left Rotor Collective ∿ Degrees.

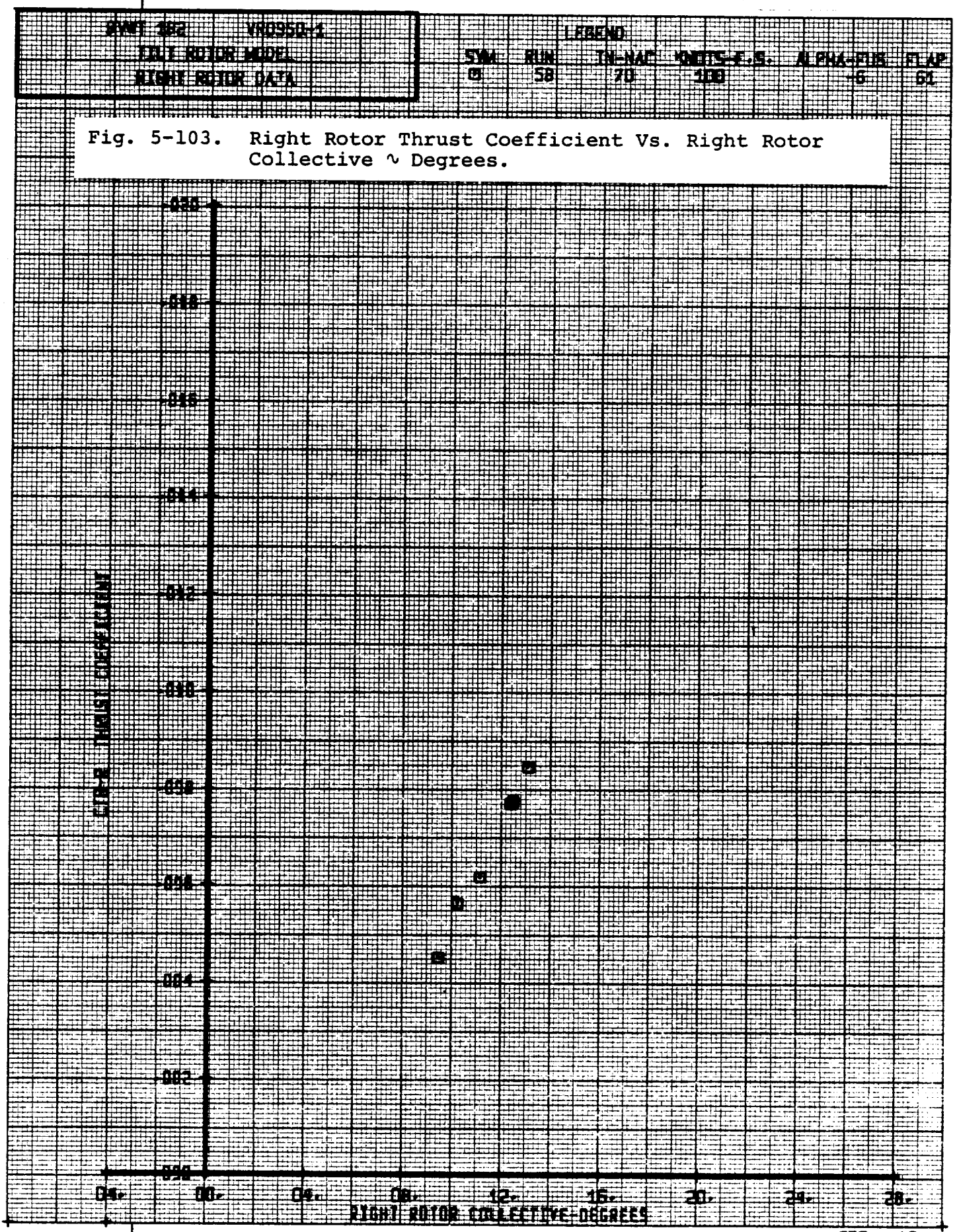


Fig. 5-103. Right Rotor Thrust Coefficient Vs. Right Rotor Collective ∿ Degrees.

SET 19
BVWT 182

SET 19
BVWT 182

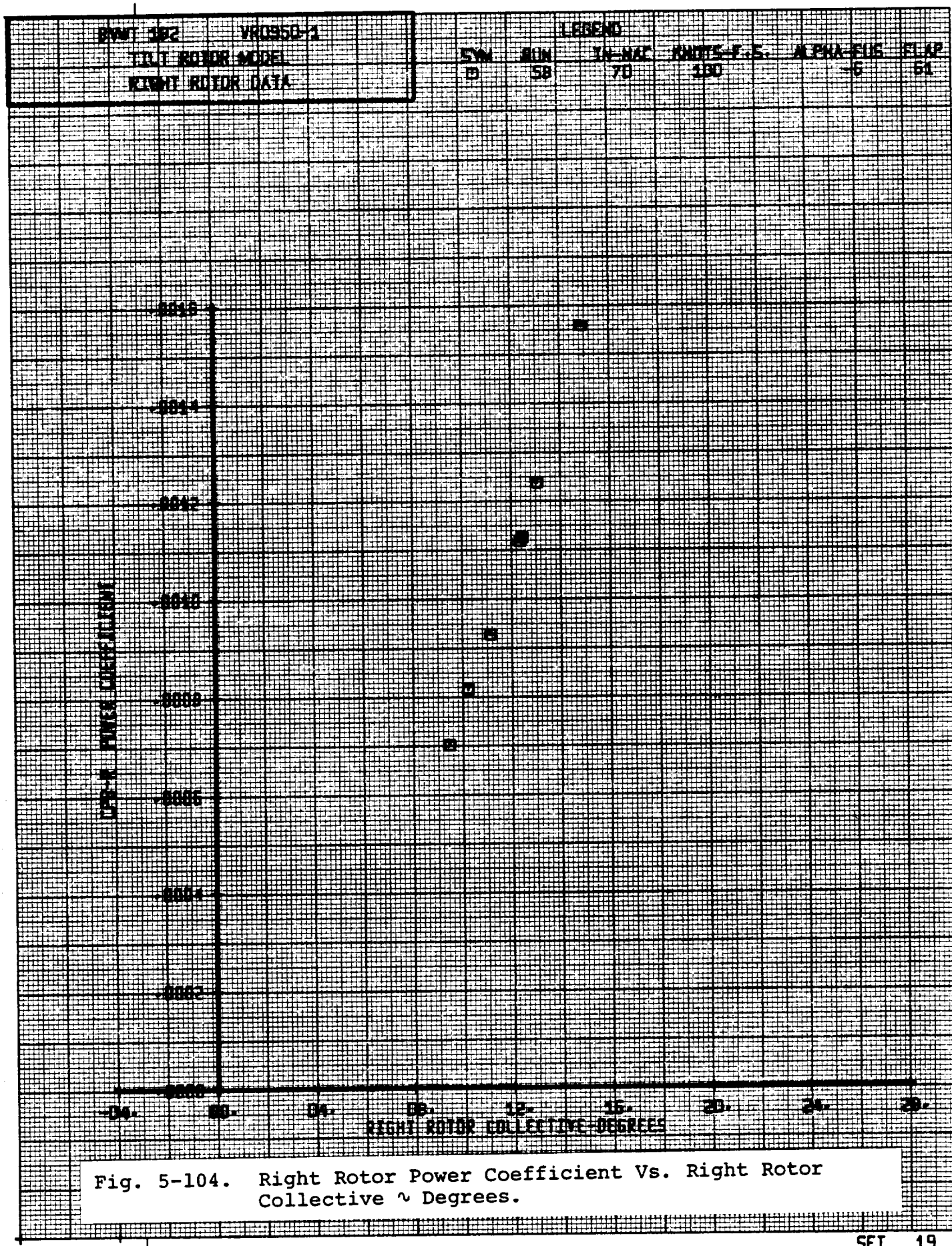


Fig. 5-104. Right Rotor Power Coefficient Vs. Right Rotor Collective ∿ Degrees.

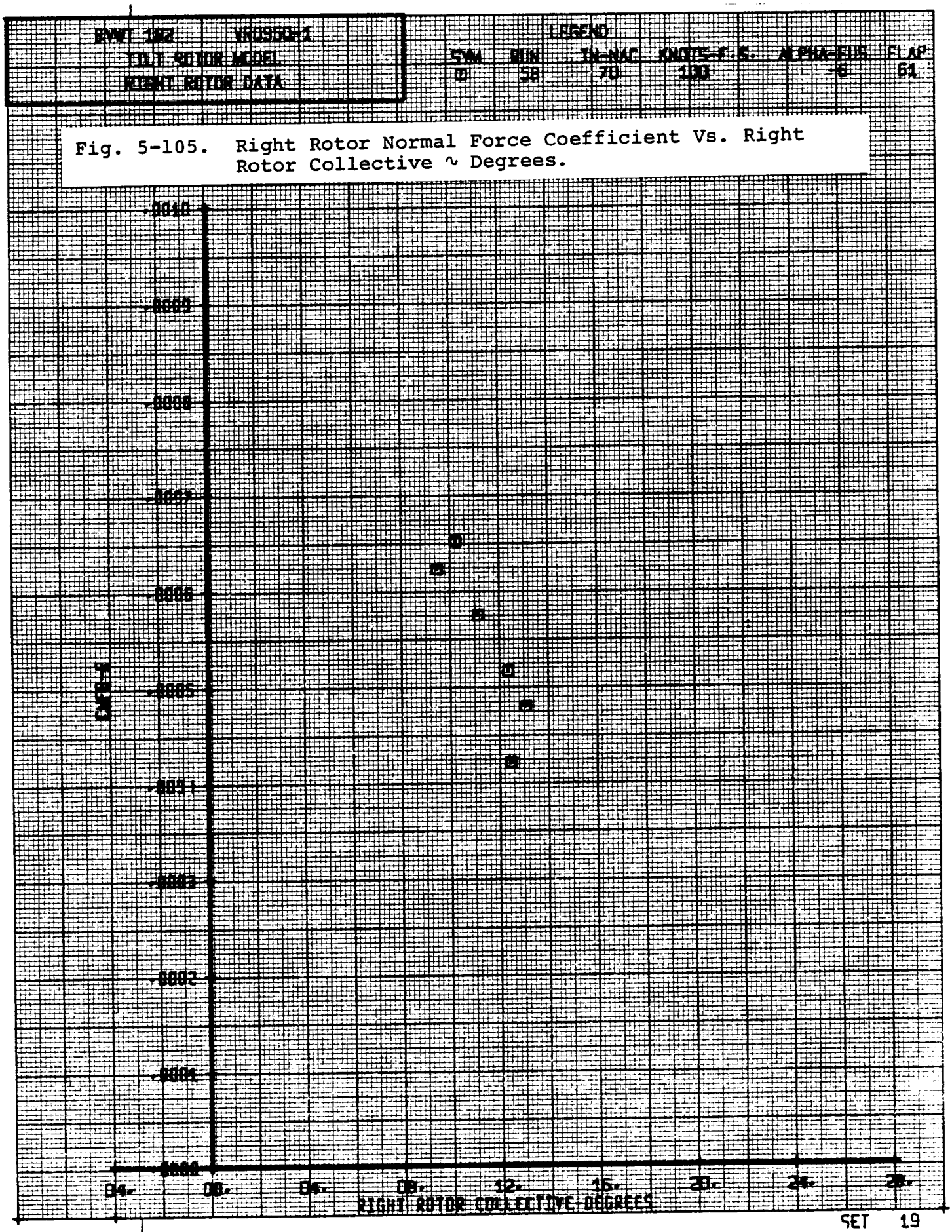


Fig. 5-105. Right Rotor Normal Force Coefficient Vs. Right Rotor Collective ∿ Degrees.

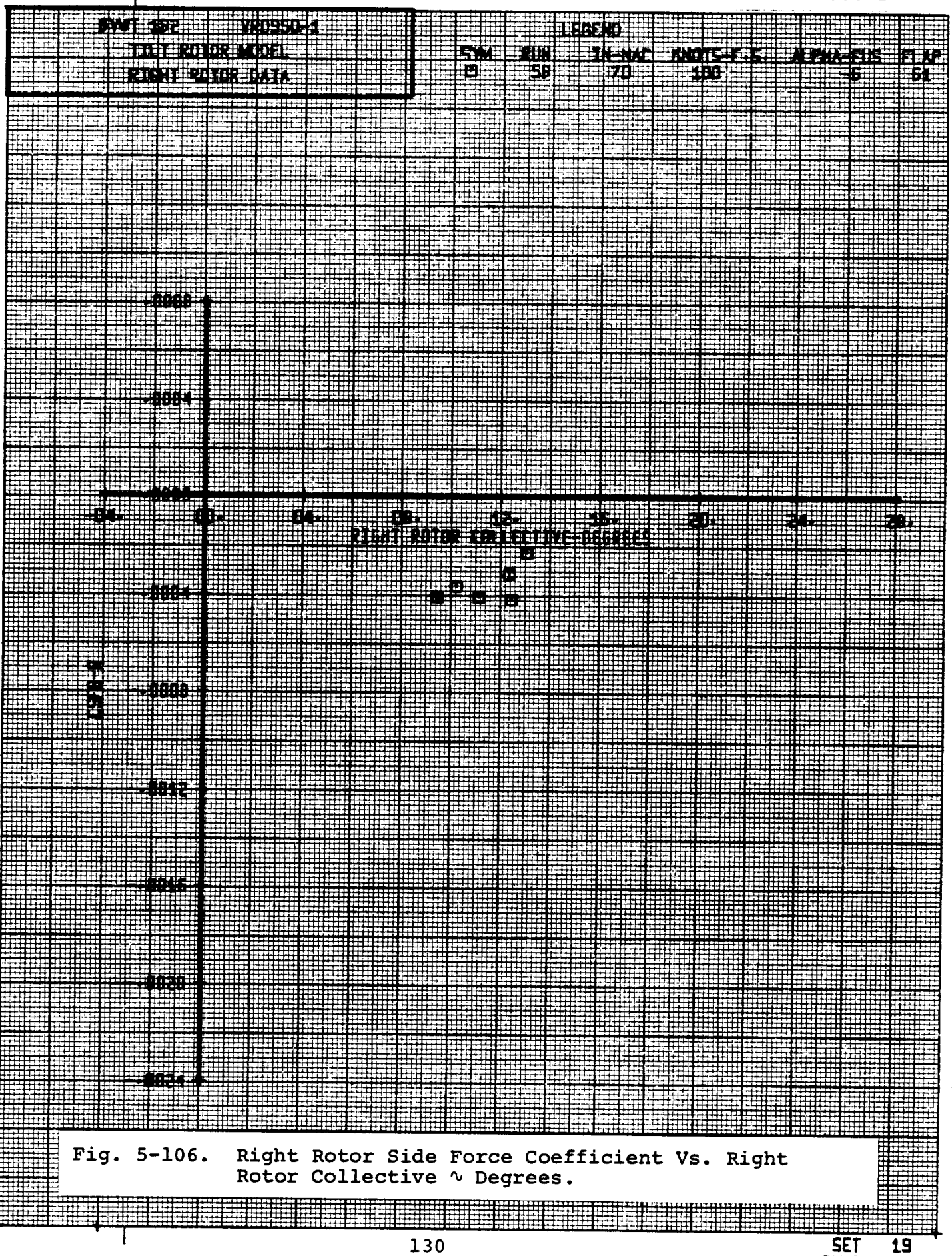


Fig. 5-106. Right Rotor Side Force Coefficient Vs. Right Rotor Collective ∿ Degrees.

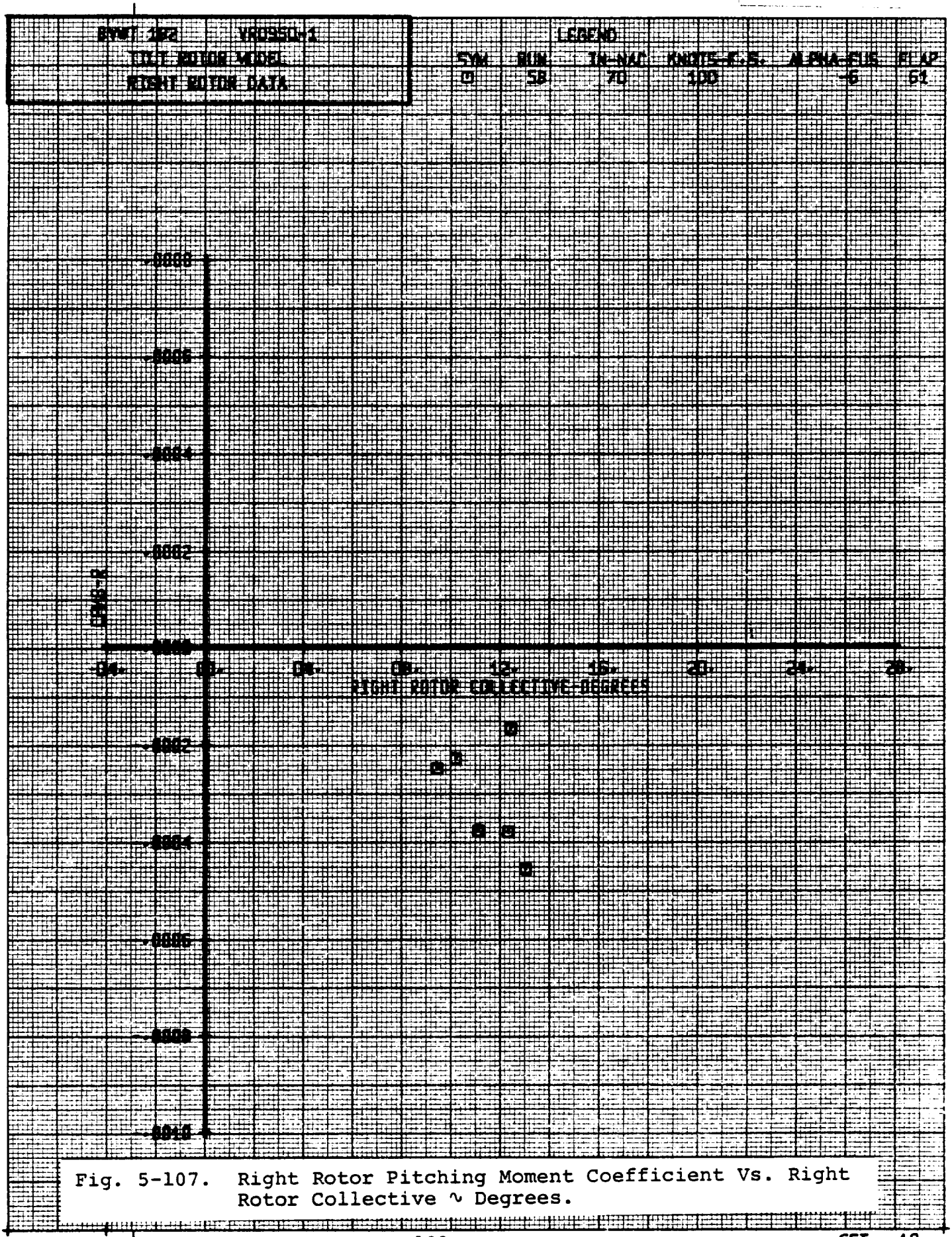


Fig. 5-107. Right Rotor Pitching Moment Coefficient Vs. Right Rotor Collective ∿ Degrees.

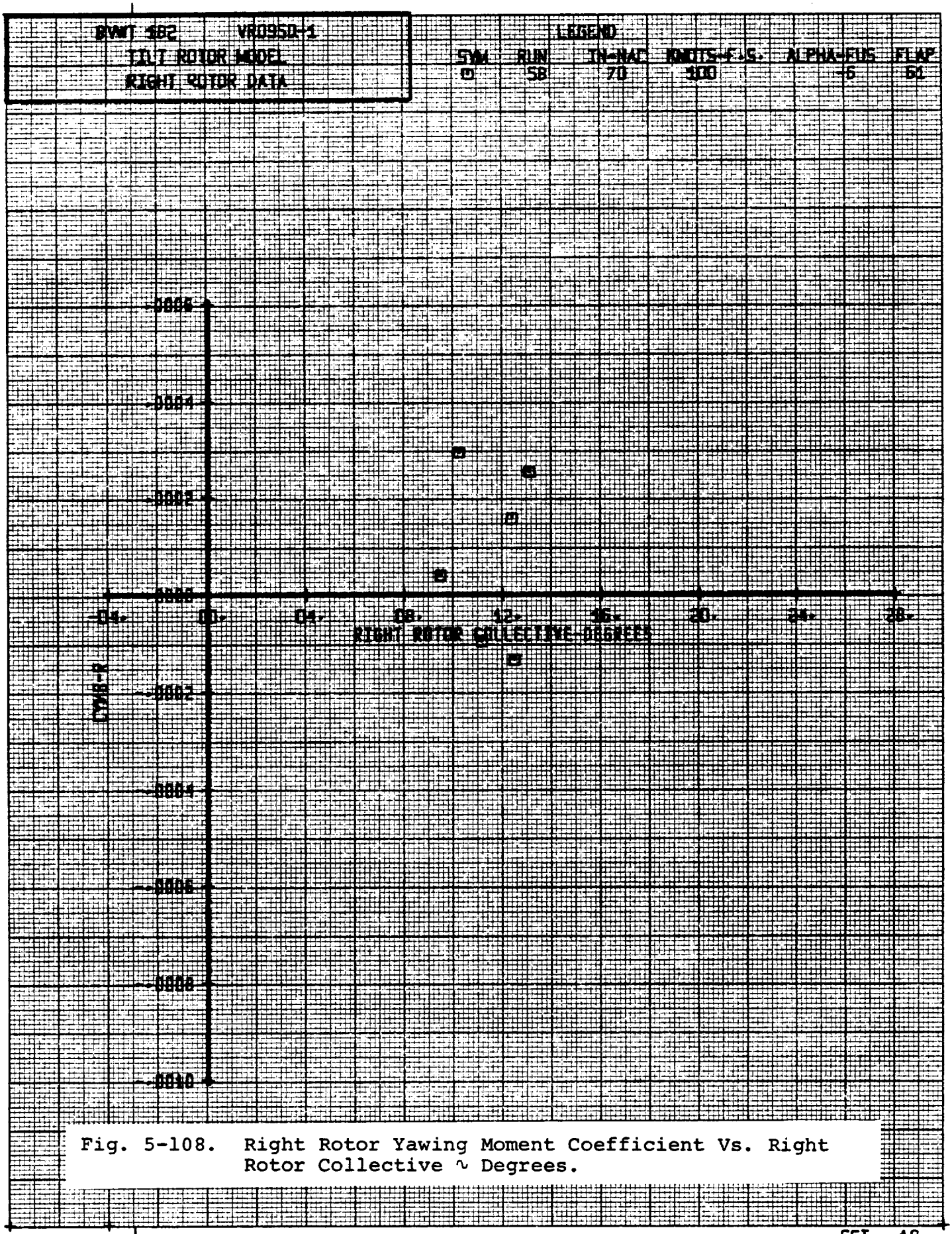


Fig. 5-108. Right Rotor Yawing Moment Coefficient Vs. Right Rotor Collective ∿ Degrees.

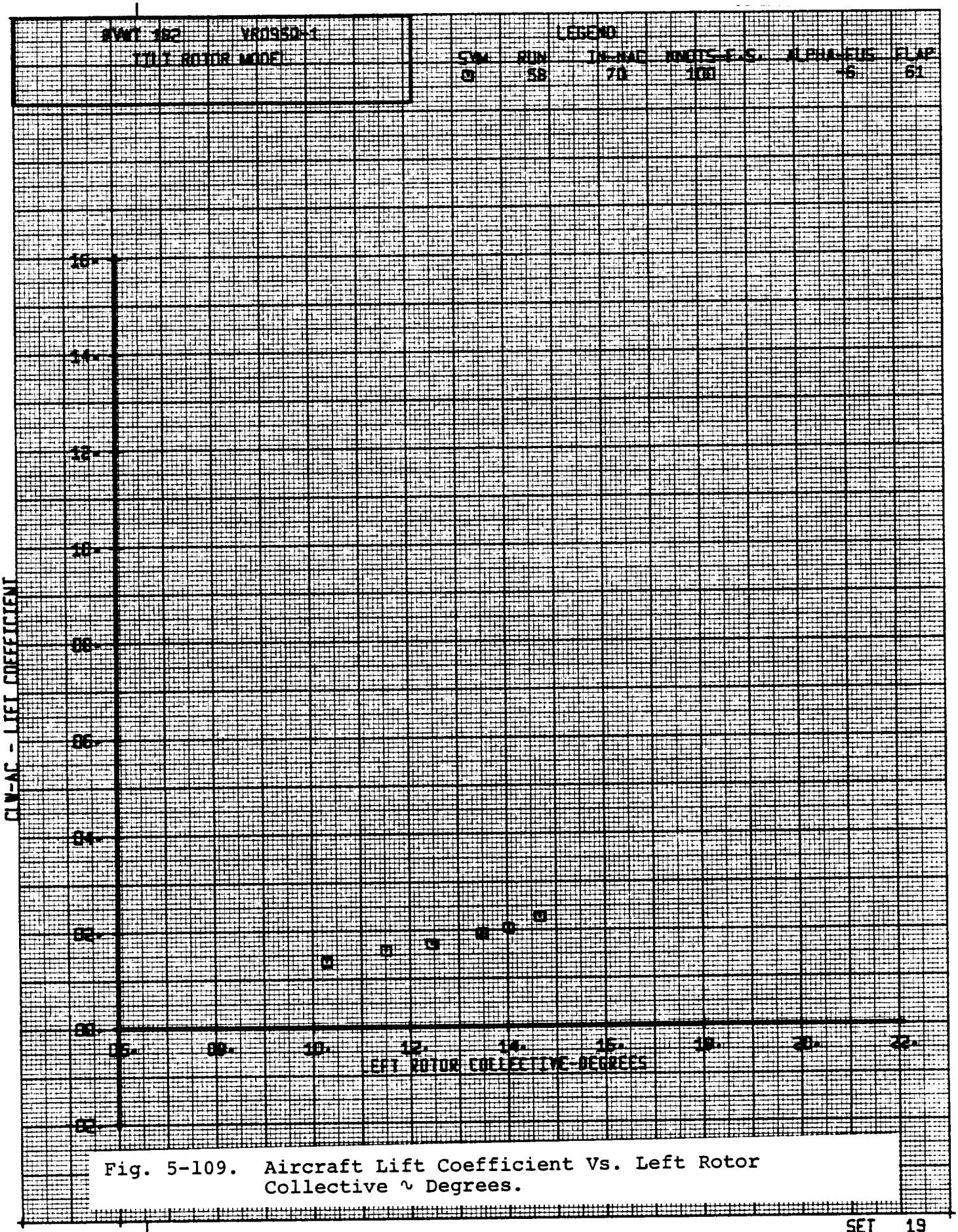


Fig. 5-109. Aircraft Lift Coefficient Vs. Left Rotor Collective ∿ Degrees.

ET 19
W 182

SET 19
BWT 182

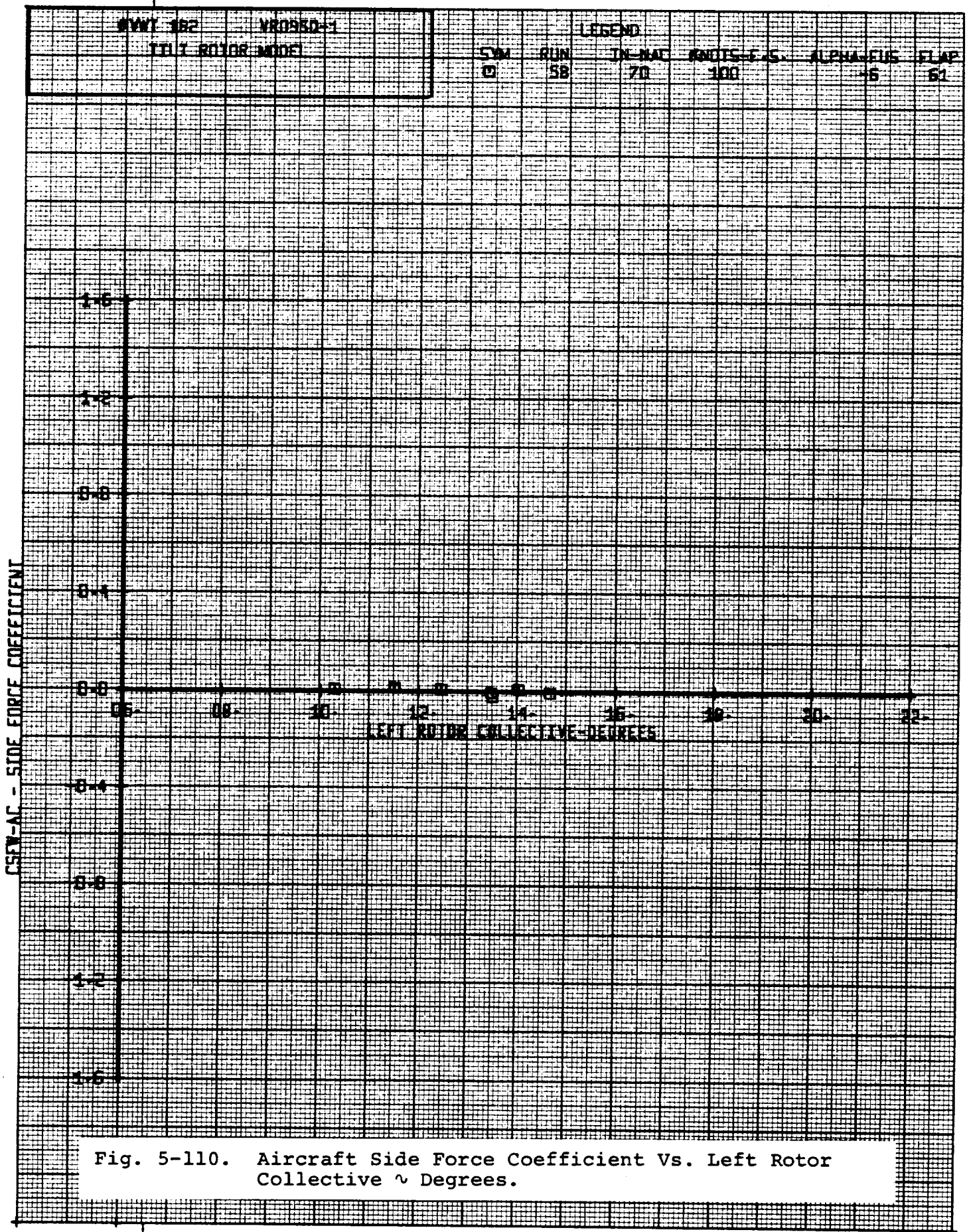


Fig. 5-110. Aircraft Side Force Coefficient Vs. Left Rotor Collective ∿ Degrees.

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SET 19
BVWT 182

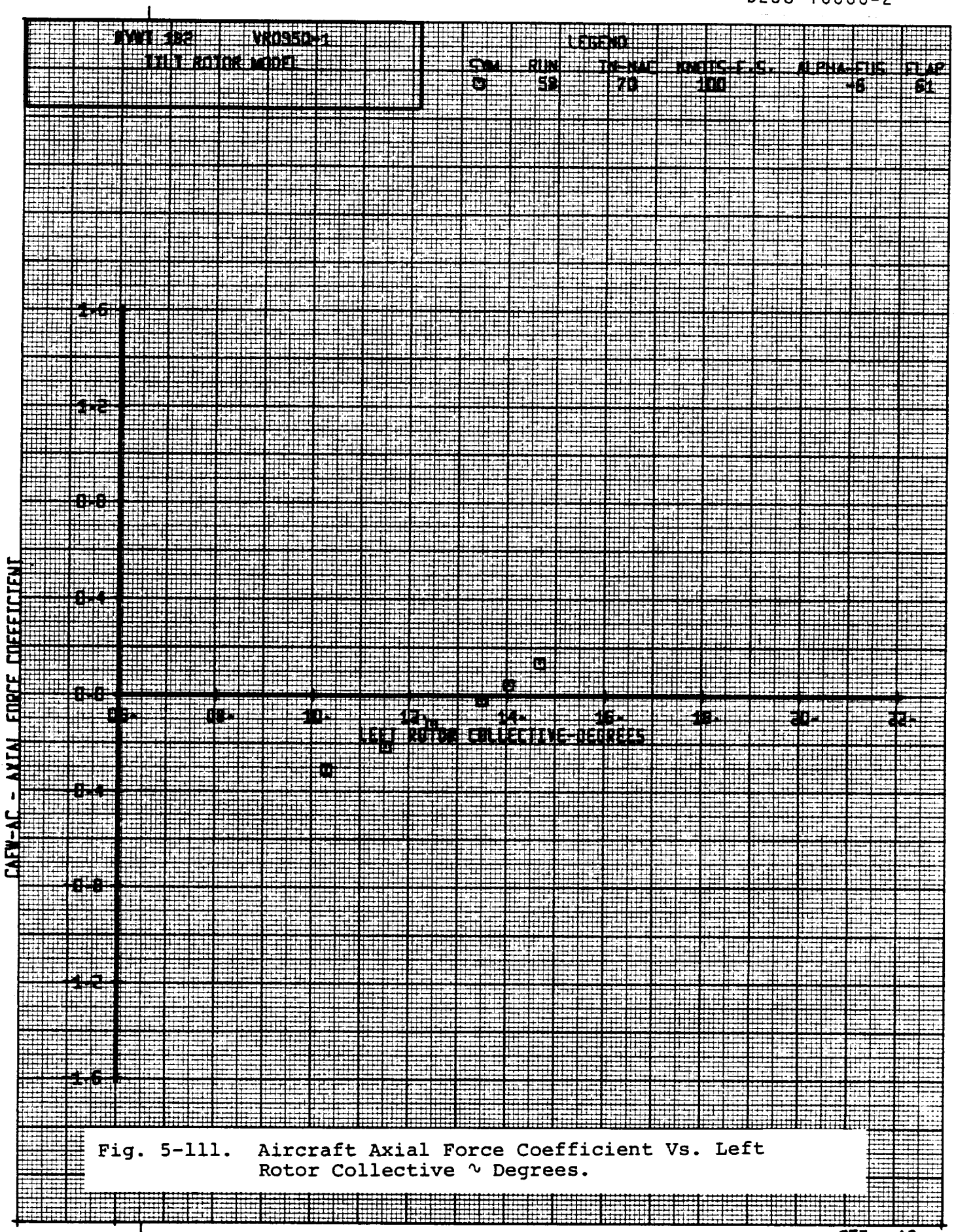


Fig. 5-111. Aircraft Axial Force Coefficient Vs. Left Rotor Collective ∿ Degrees.

ET 19
W 182

SET 19
BVWT 182

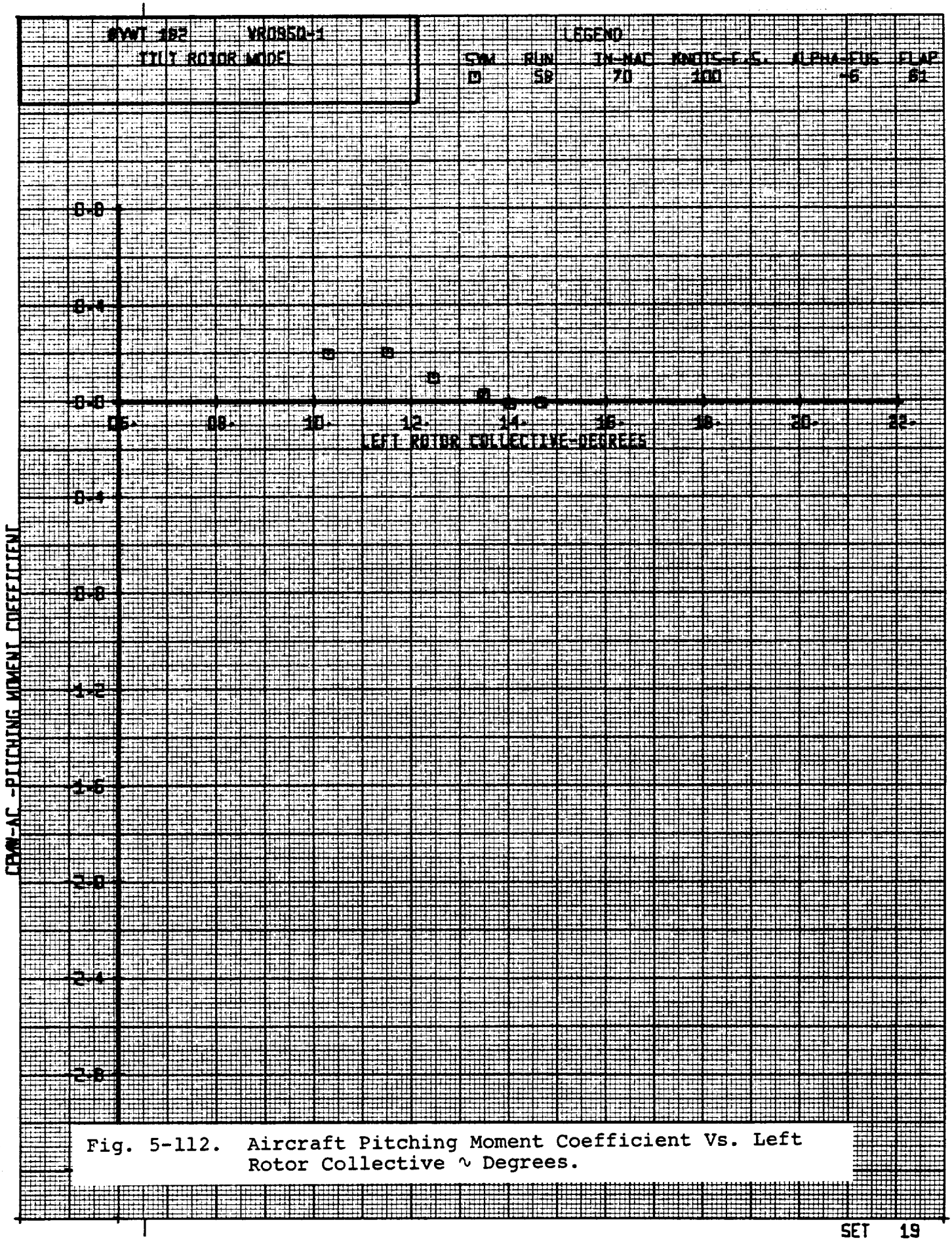


Fig. 5-112. Aircraft Pitching Moment Coefficient Vs. Left Rotor Collective ∿ Degrees.

19
182

SET 19
BWT 182

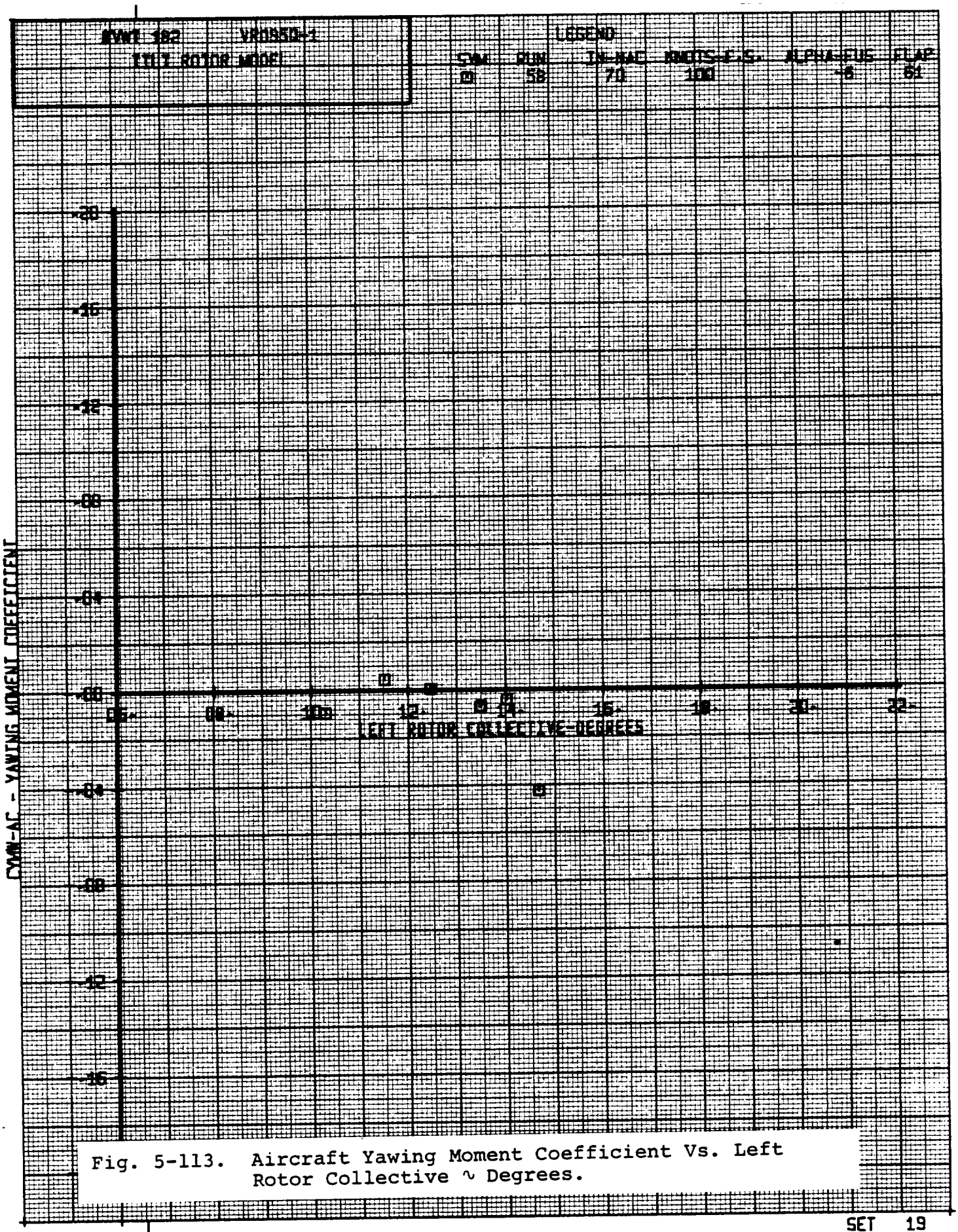


Fig. 5-113. Aircraft Yawing Moment Coefficient Vs. Left Rotor Collective ∿ Degrees.

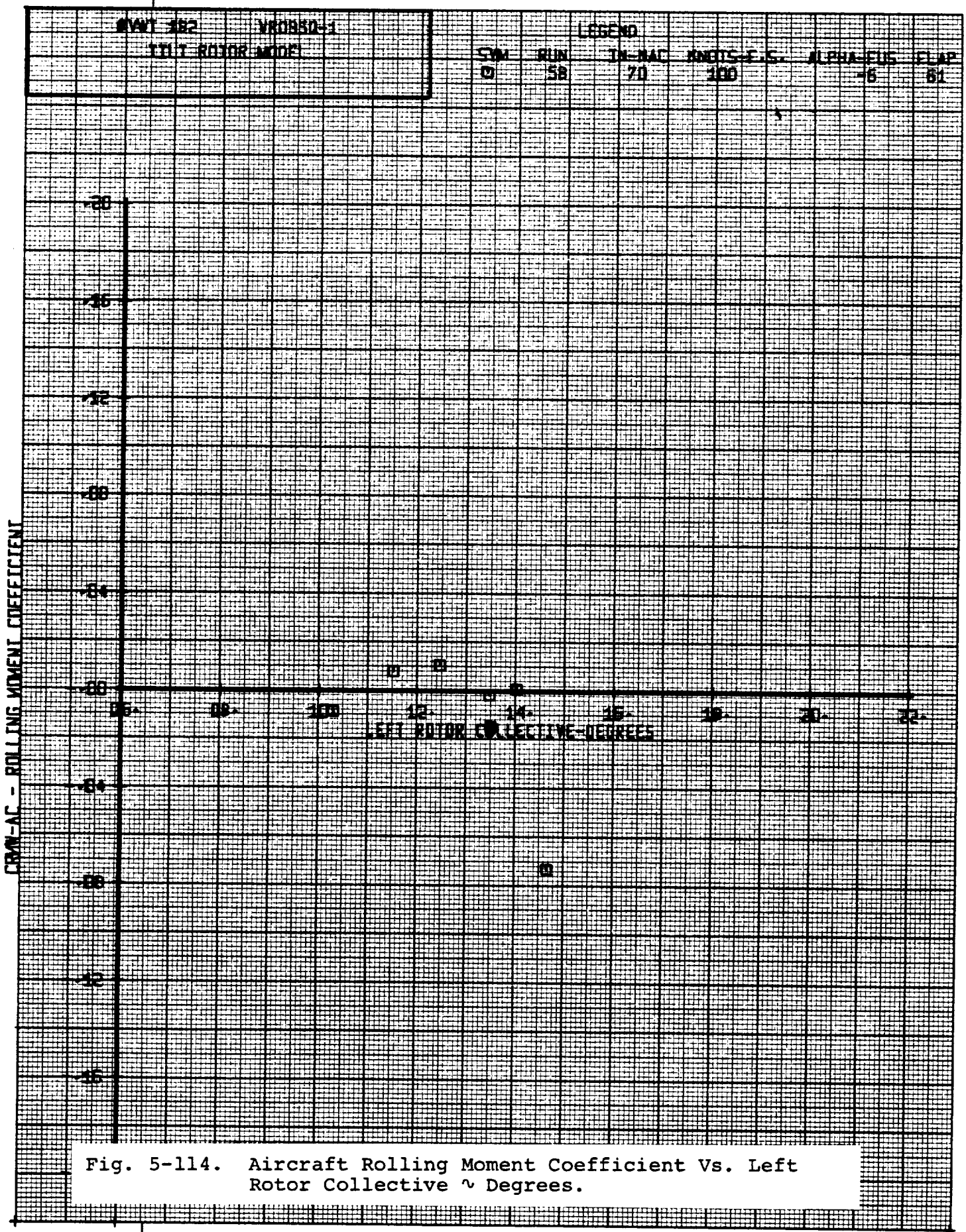


Fig. 5-114. Aircraft Rolling Moment Coefficient Vs. Left Rotor Collective ∿ Degrees.

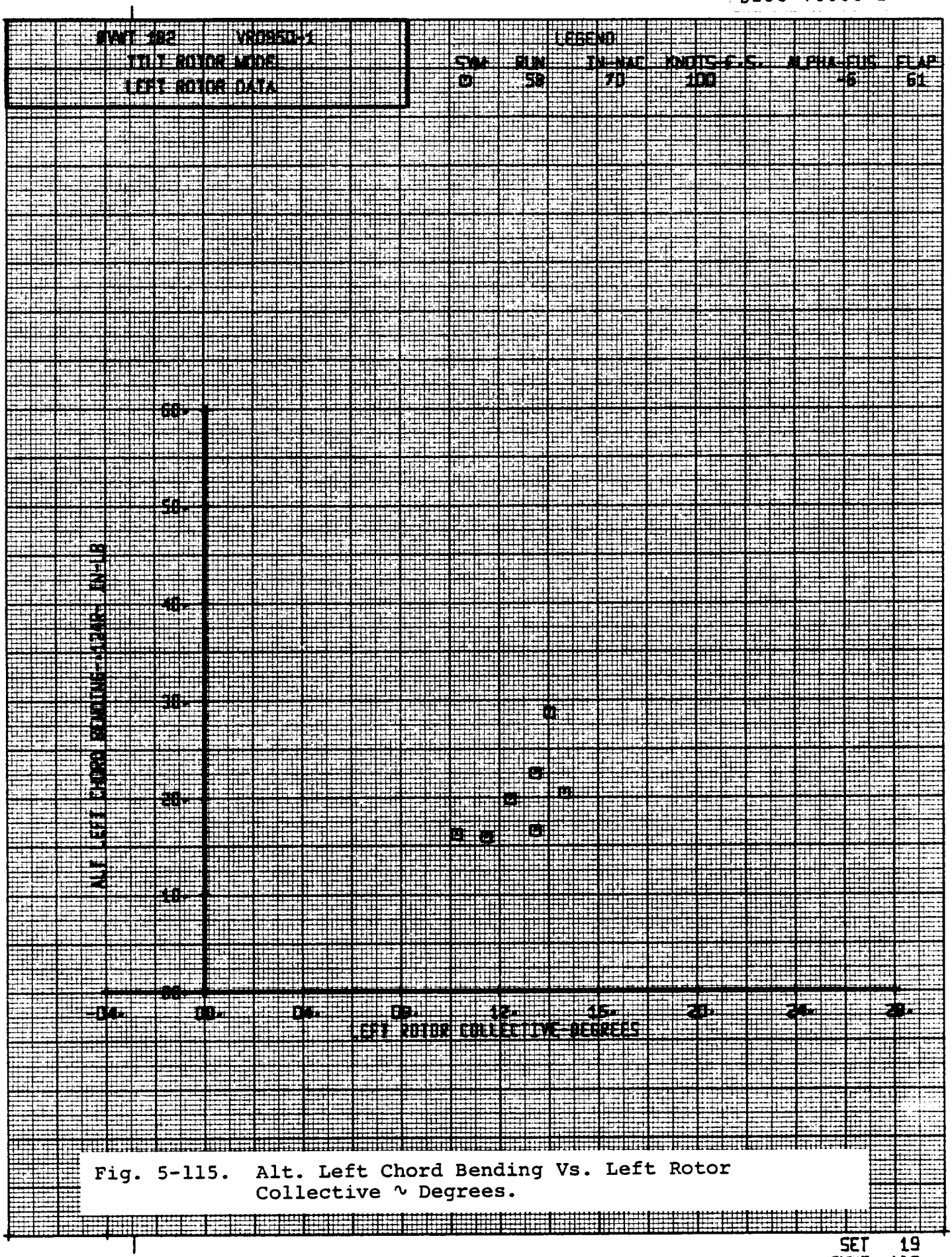


Fig. 5-115. Alt. Left Chord Bending Vs. Left Rotor Collective ∿ Degrees.

SET 19
BVWT 182

SET 19
BVWT 182

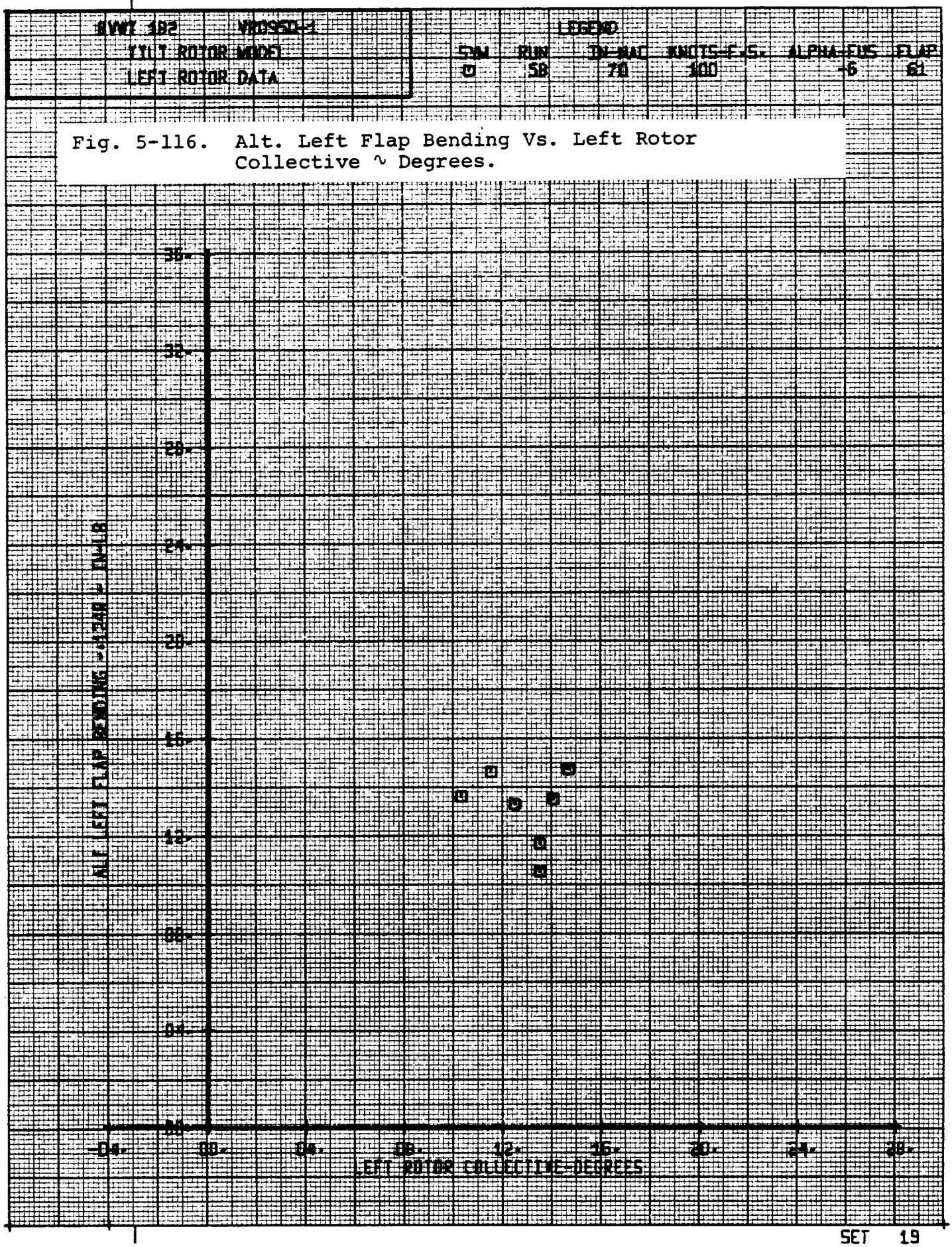


Fig. 5-116. Alt. Left Flap Bending Vs. Left Rotor Collective ∿ Degrees.

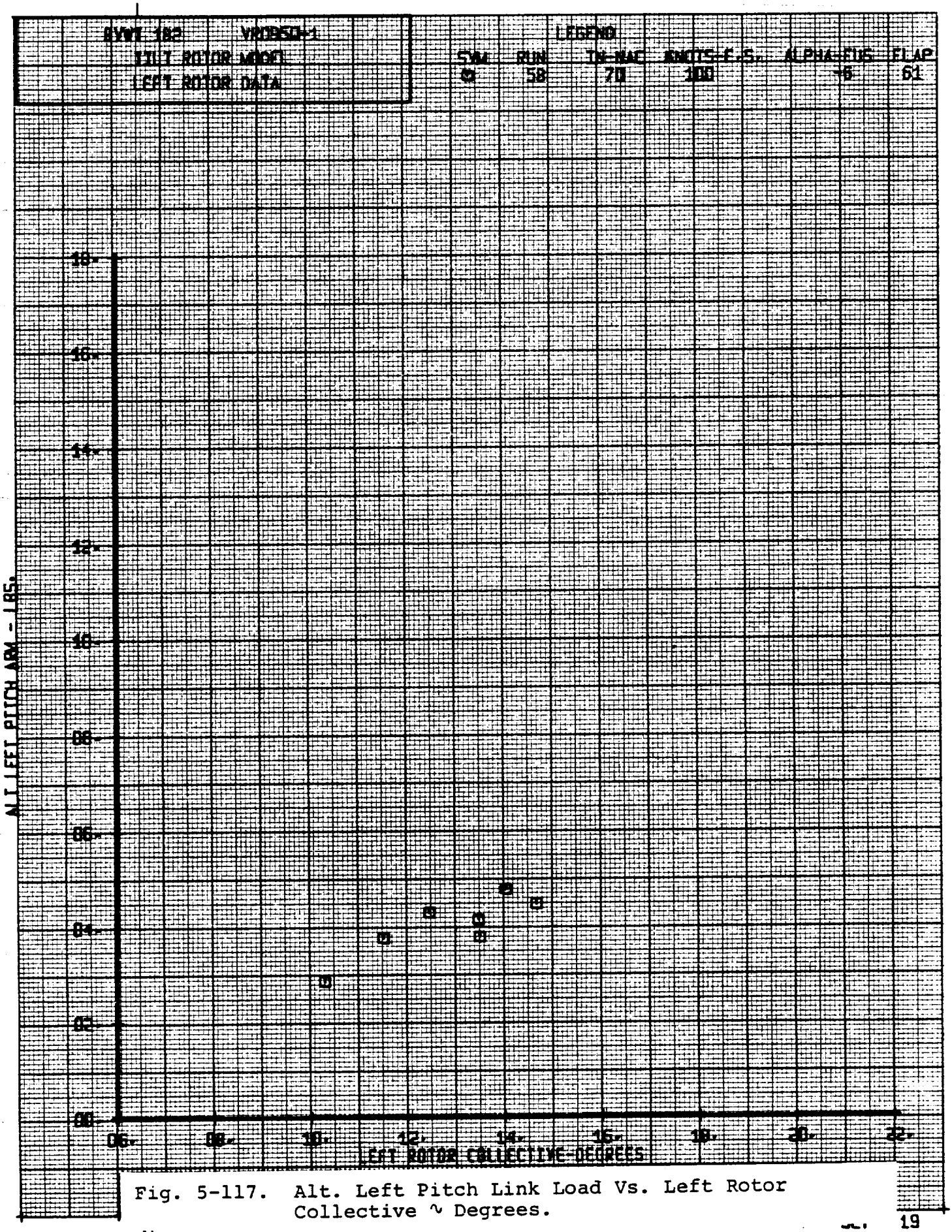


Fig. 5-117. Alt. Left Pitch Link Load Vs. Left Rotor Collective ∿ Degrees.

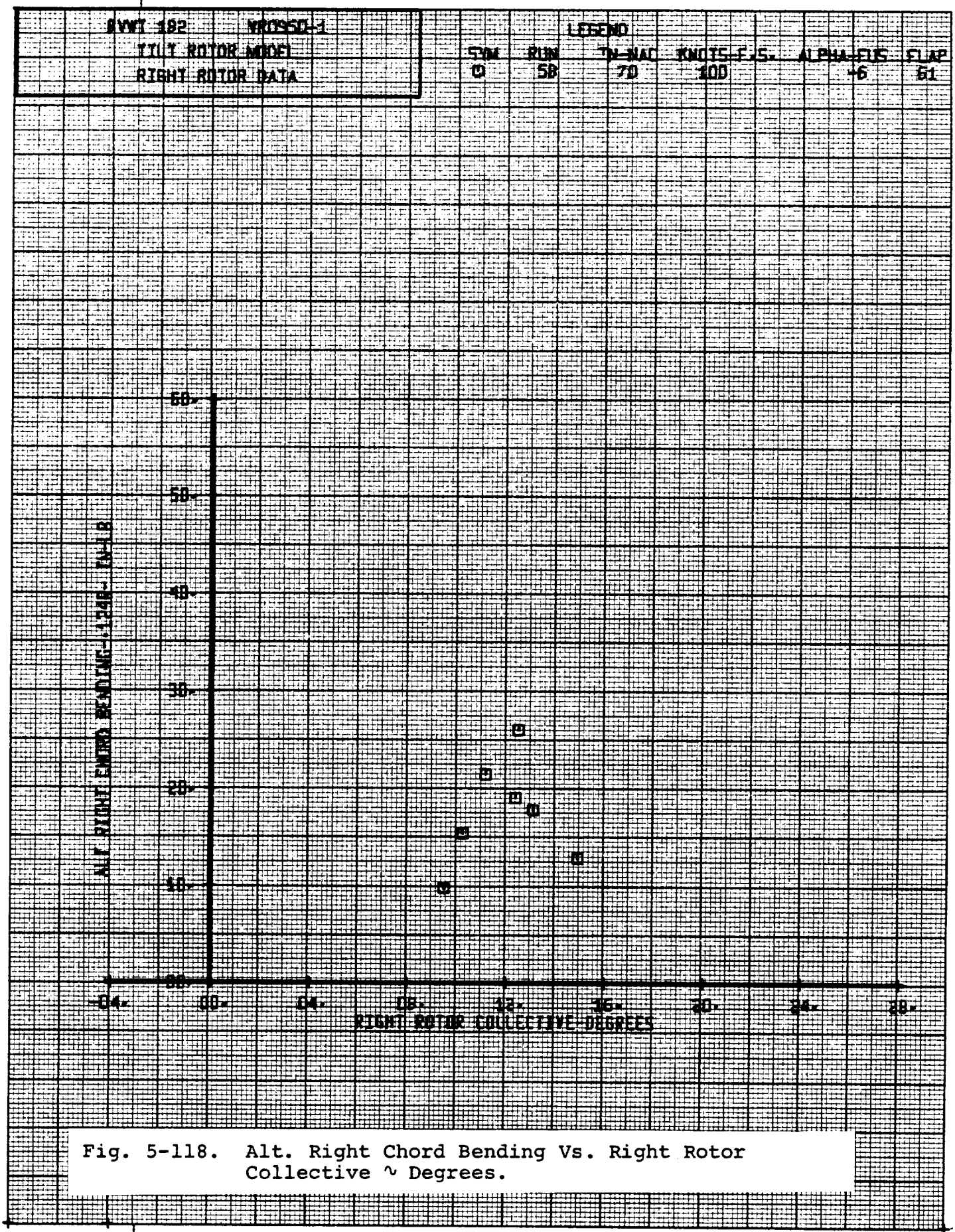


Fig. 5-118. Alt. Right Chord Bending Vs. Right Rotor Collective ∿ Degrees.

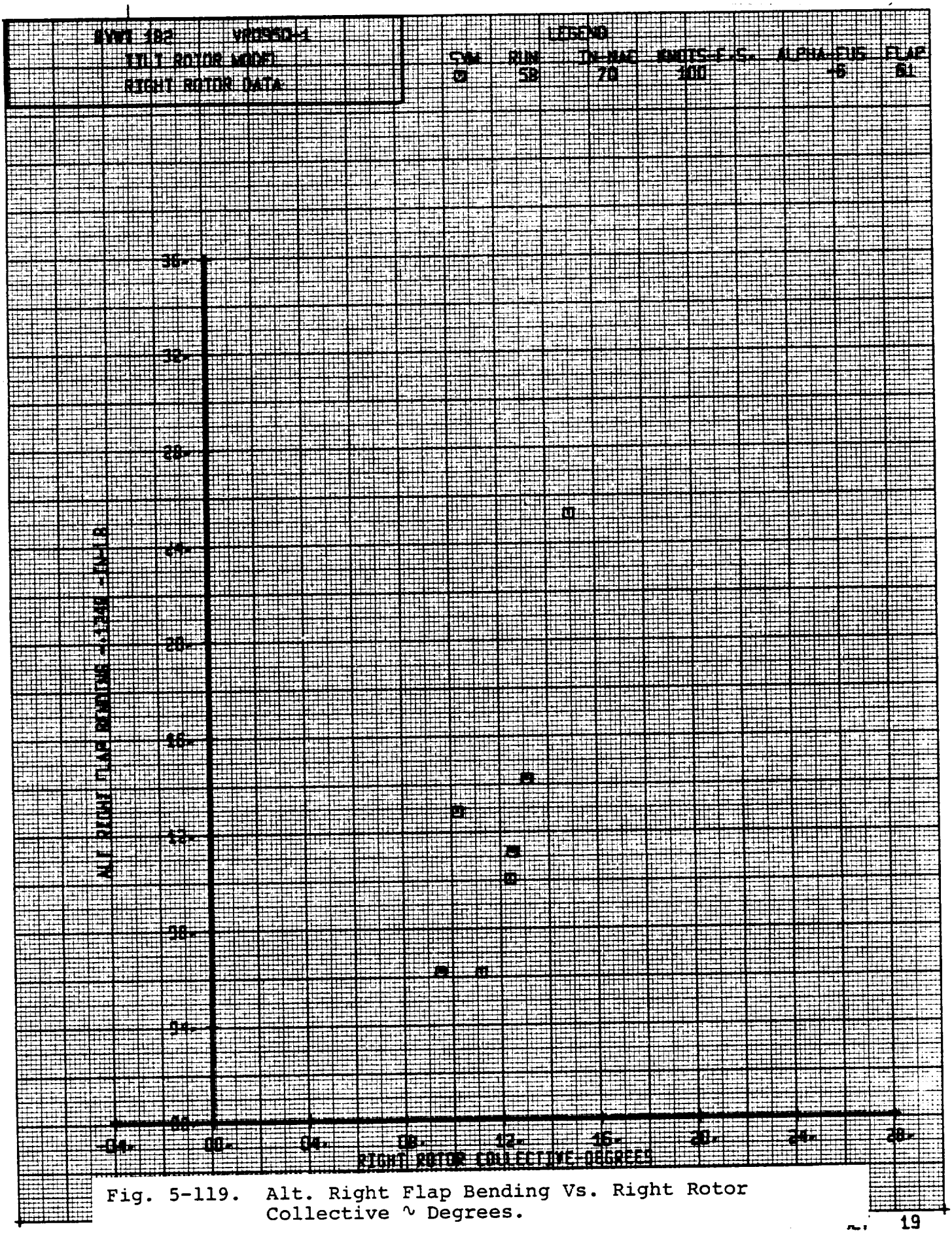


Fig. 5-119. Alt. Right Flap Bending Vs. Right Rotor Collective ∿ Degrees.

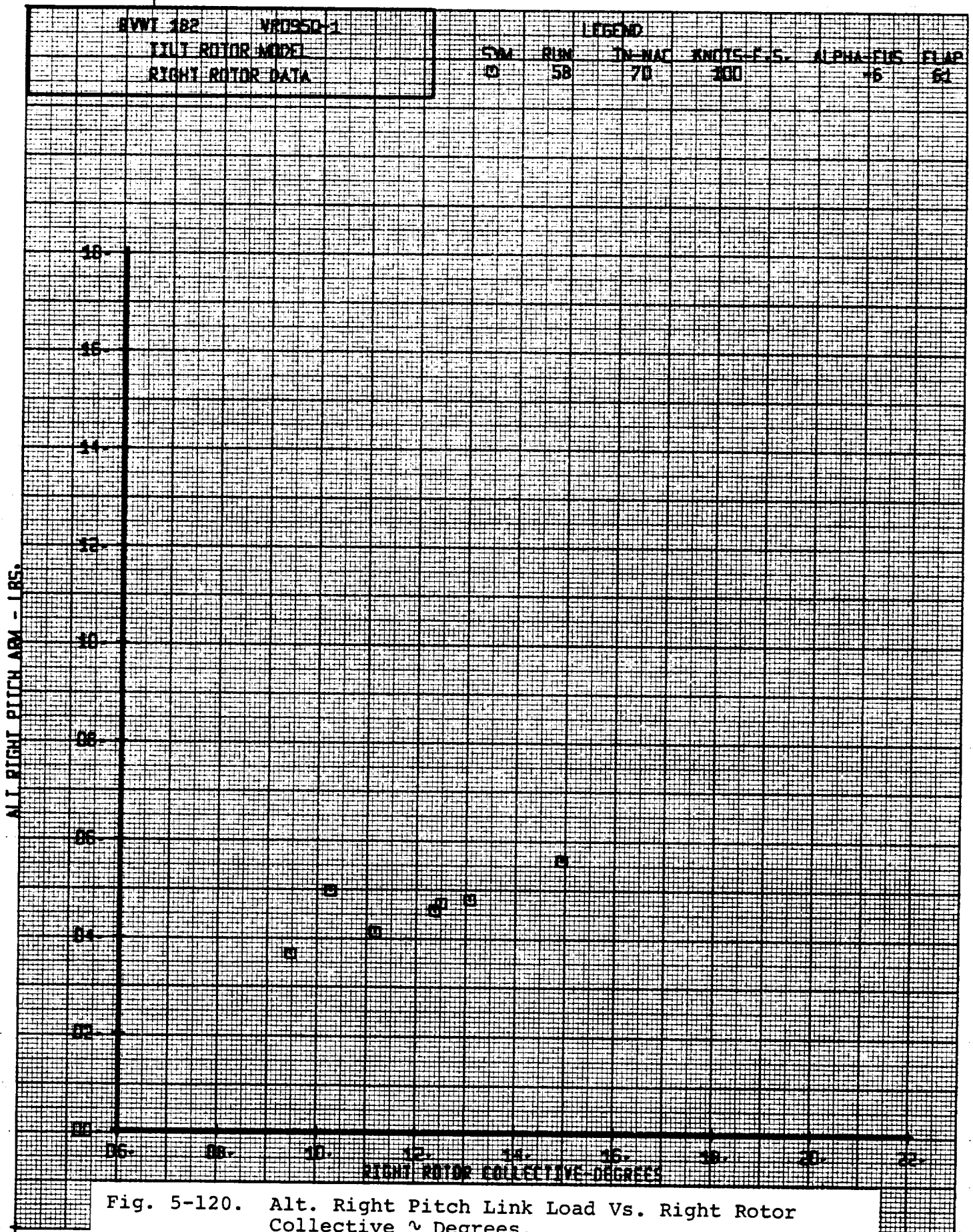


Fig. 5-120. Alt. Right Pitch Link Load Vs. Right Rotor Collective ∿ Degrees.

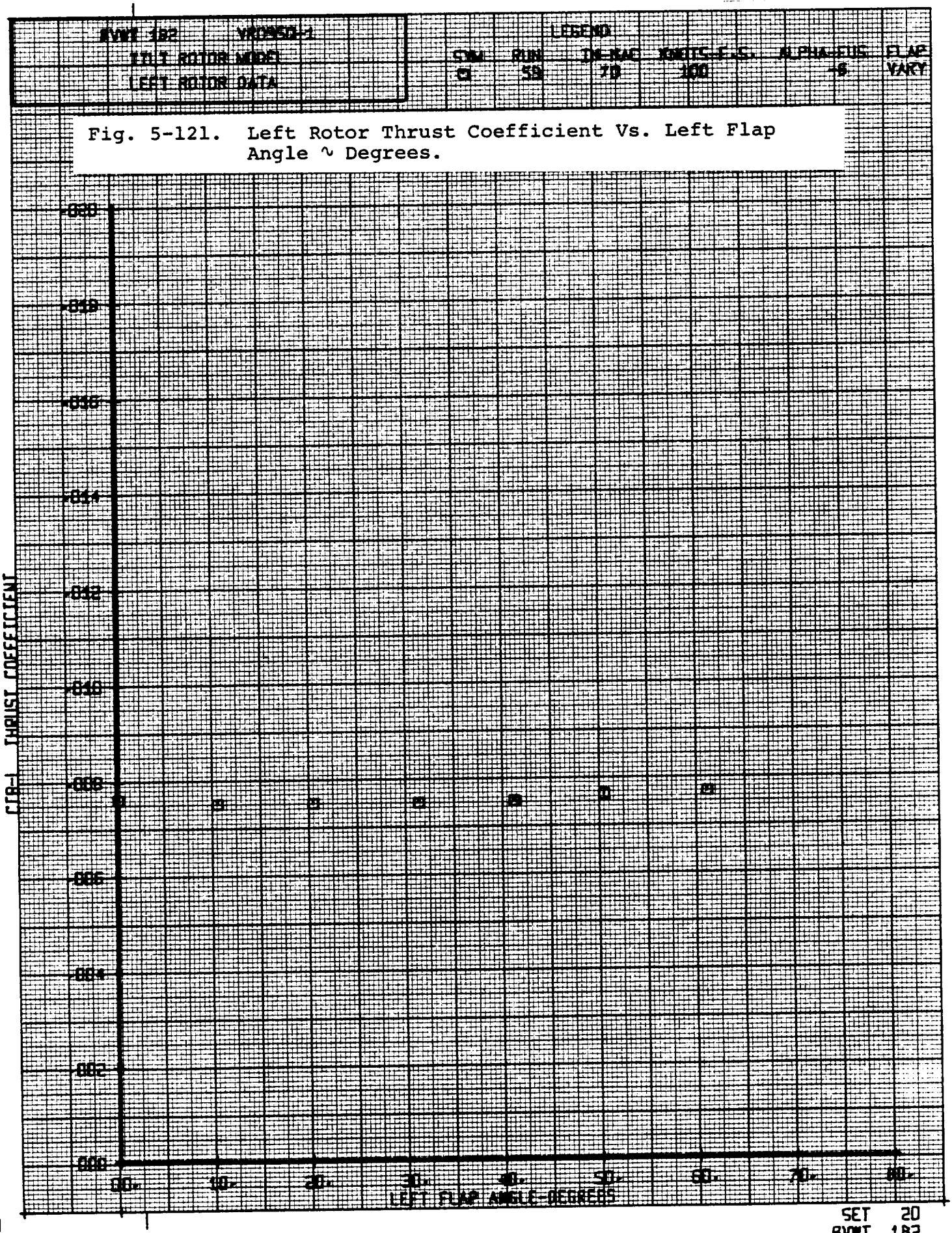


Fig. 5-121. Left Rotor Thrust Coefficient Vs. Left Flap Angle ∿ Degrees.

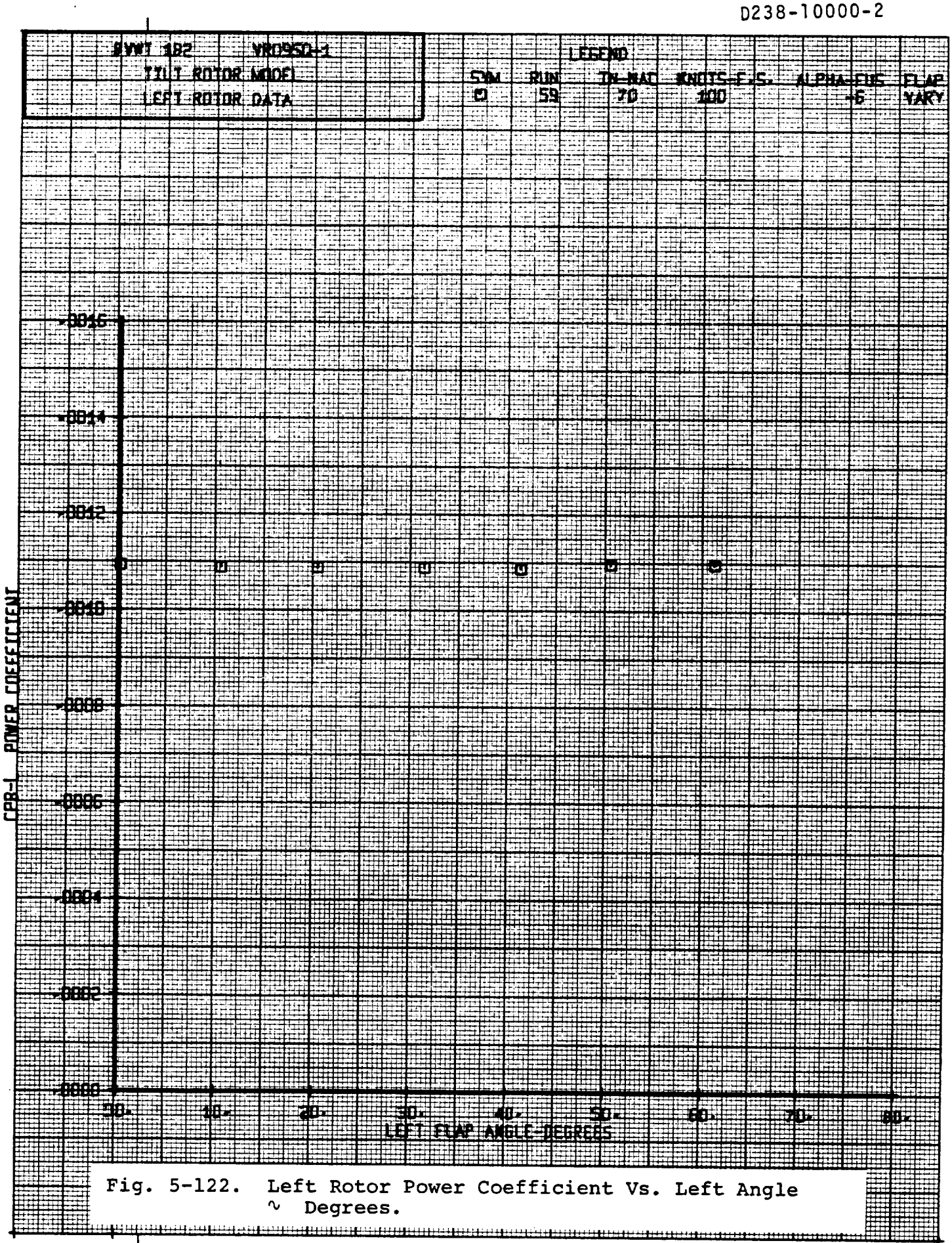


Fig. 5-122. Left Rotor Power Coefficient Vs. Left Angle ∿ Degrees.

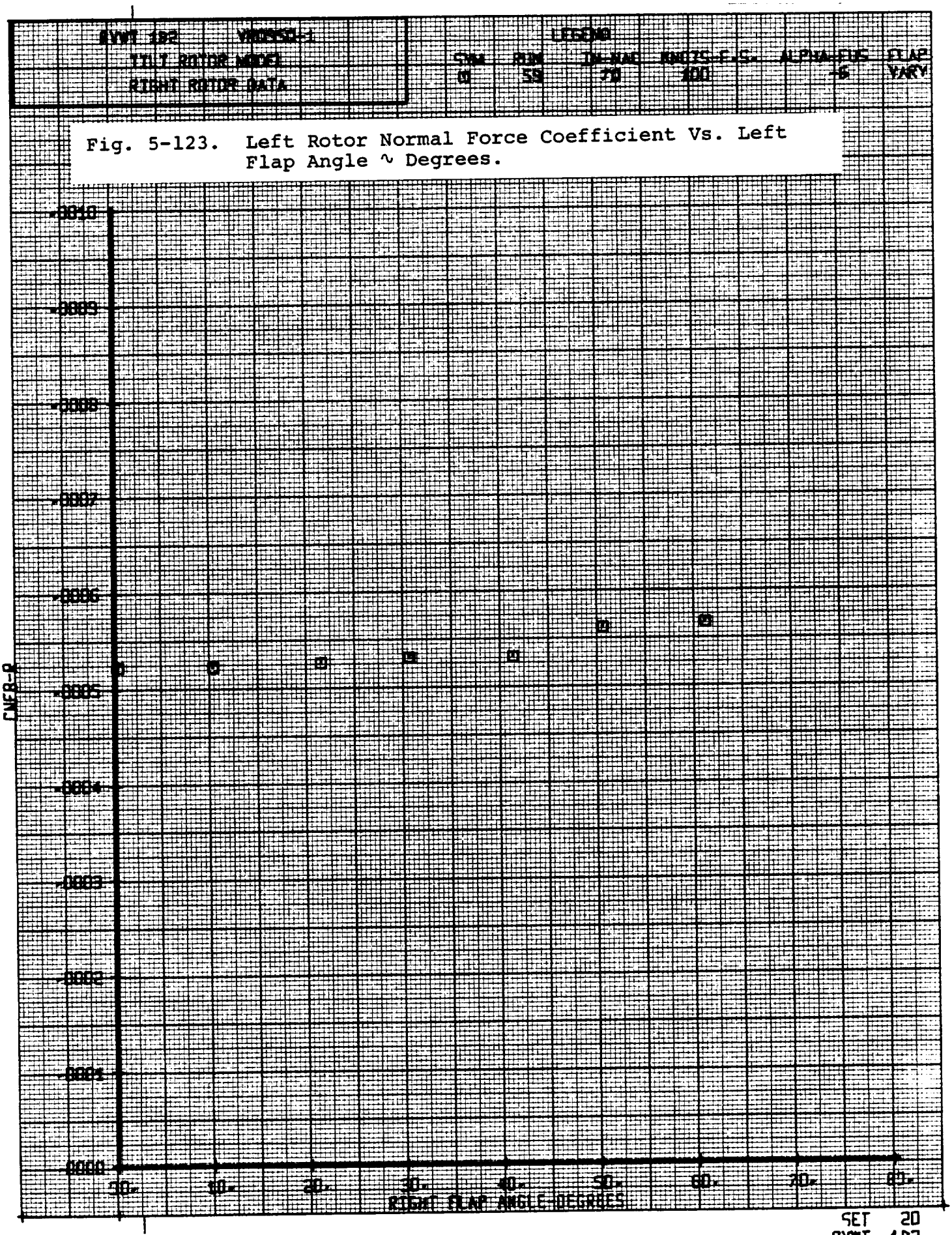


Fig. 5-123. Left Rotor Normal Force Coefficient Vs. Left Flap Angle ∿ Degrees.

SET 20
BVWT 182

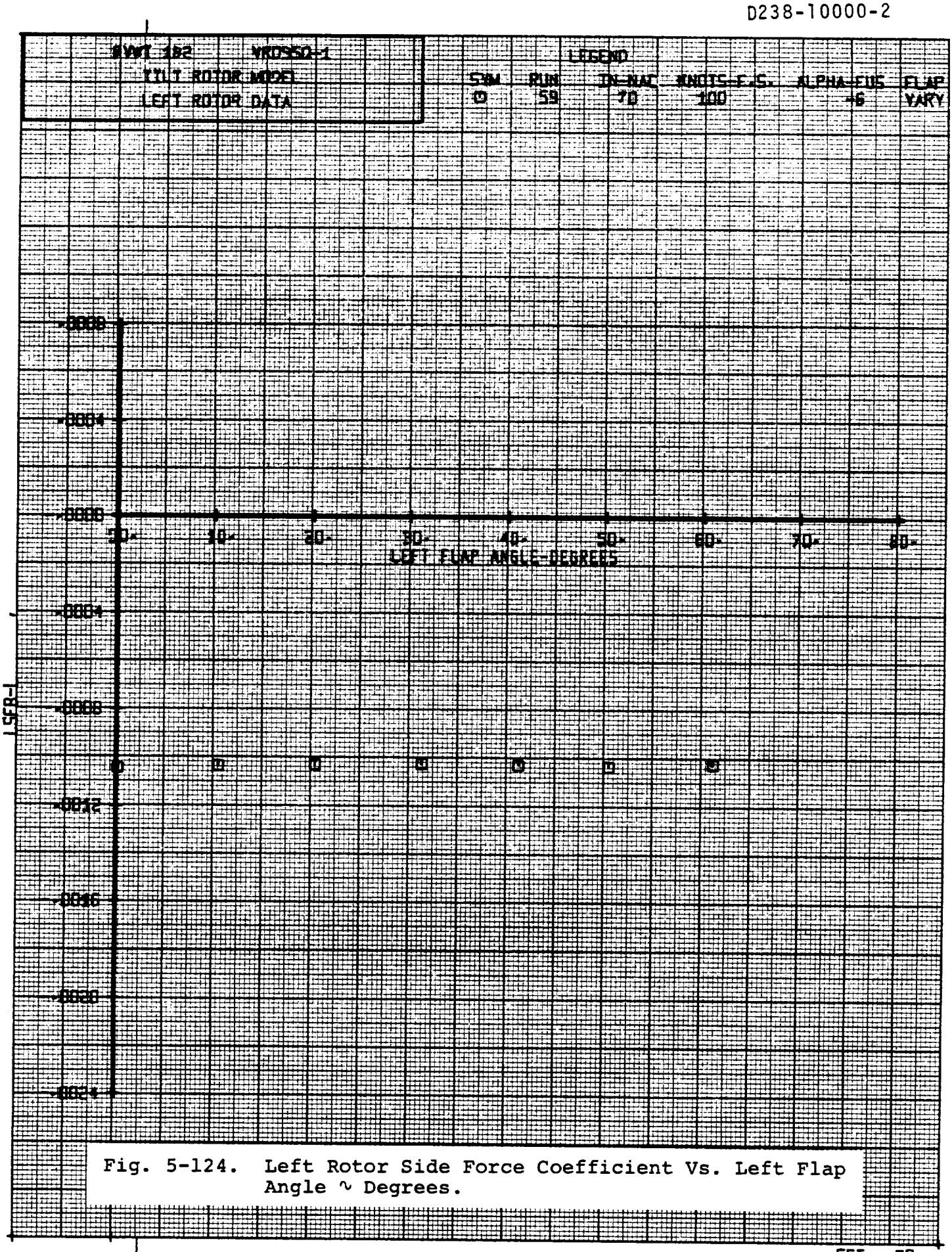


Fig. 5-124. Left Rotor Side Force Coefficient Vs. Left Flap Angle ∿ Degrees.

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182

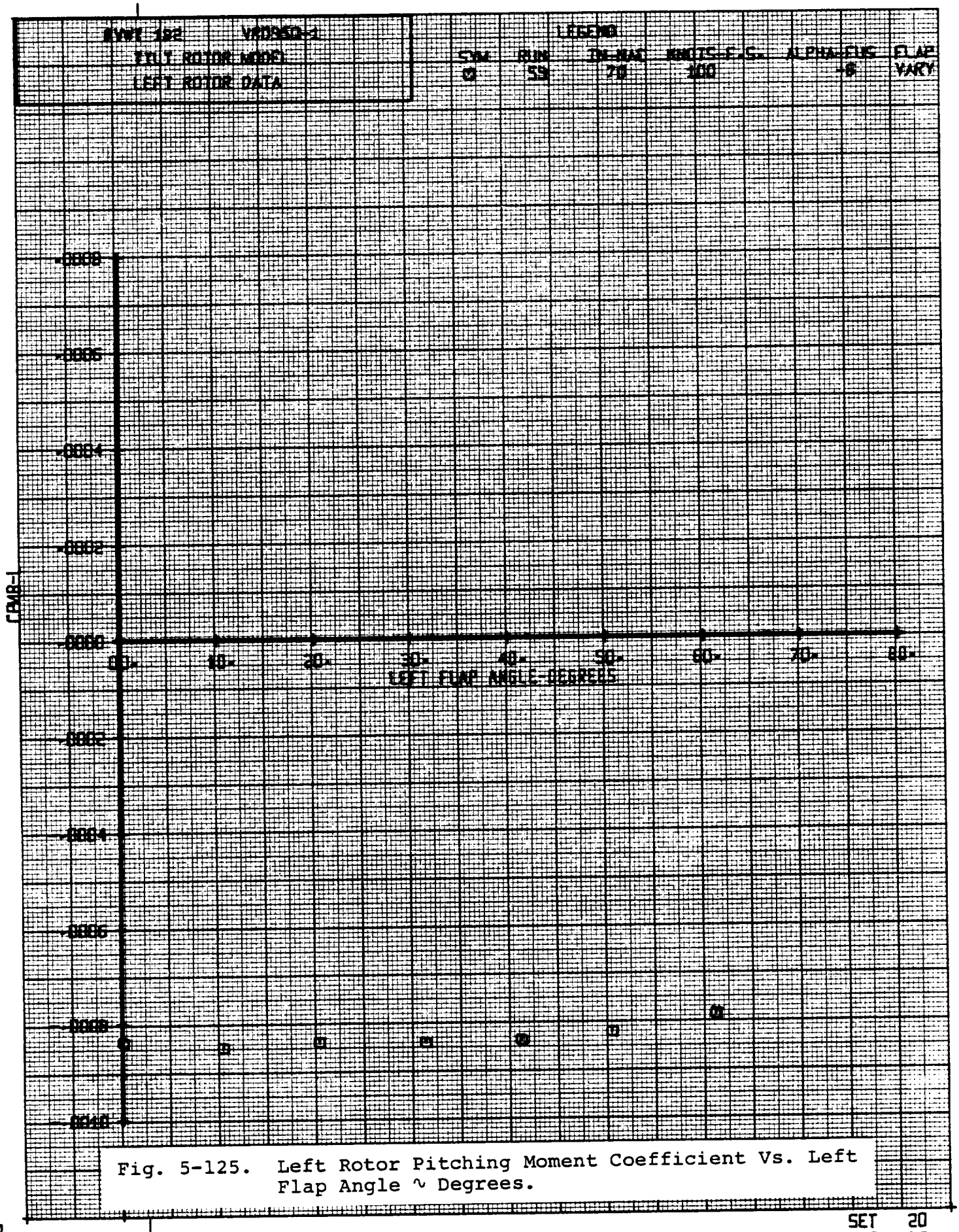


Fig. 5-125. Left Rotor Pitching Moment Coefficient Vs. Left Flap Angle ∿ Degrees.

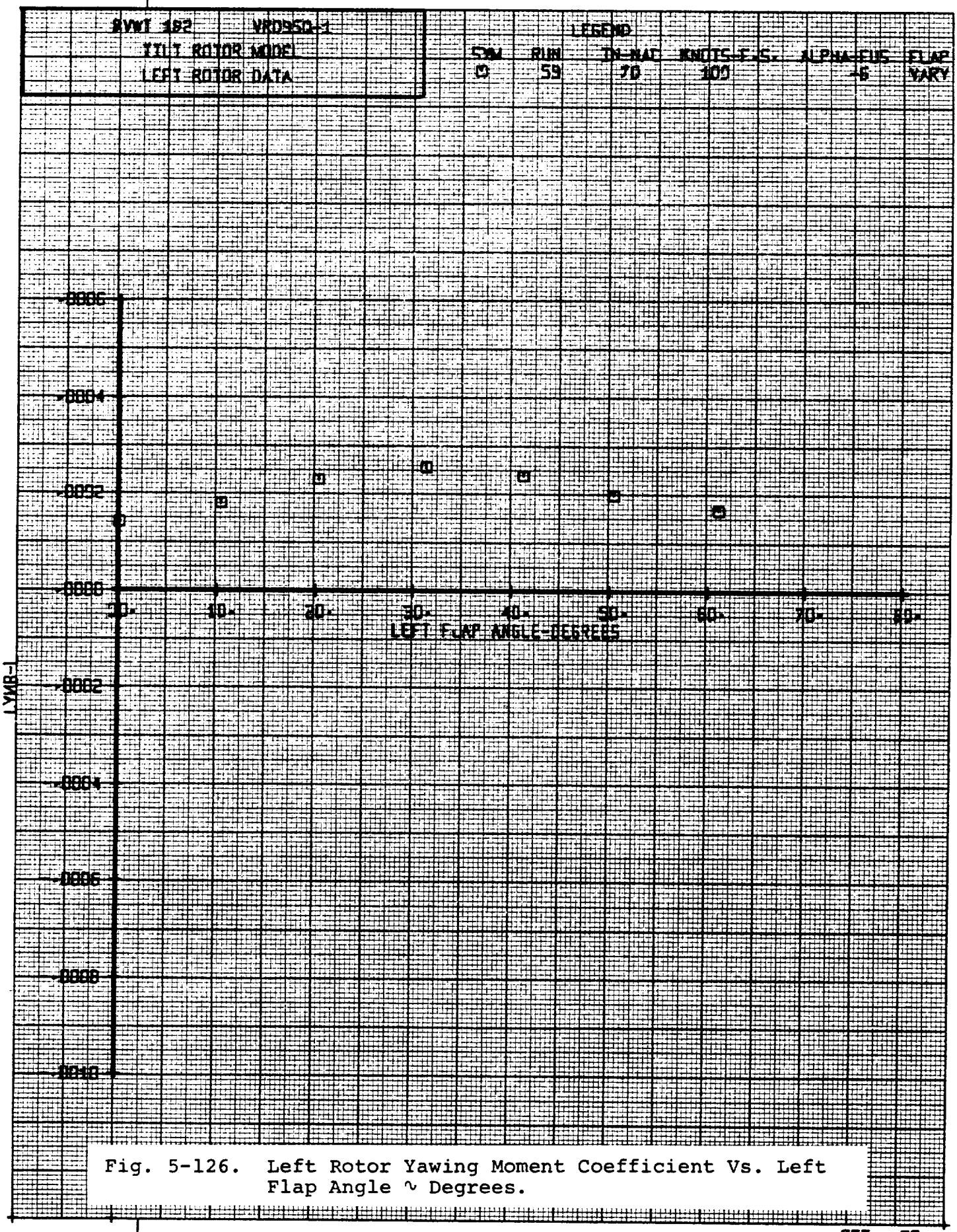


Fig. 5-126. Left Rotor Yawing Moment Coefficient Vs. Left Flap Angle ∿ Degrees.

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182

SET 20
BVWT 182

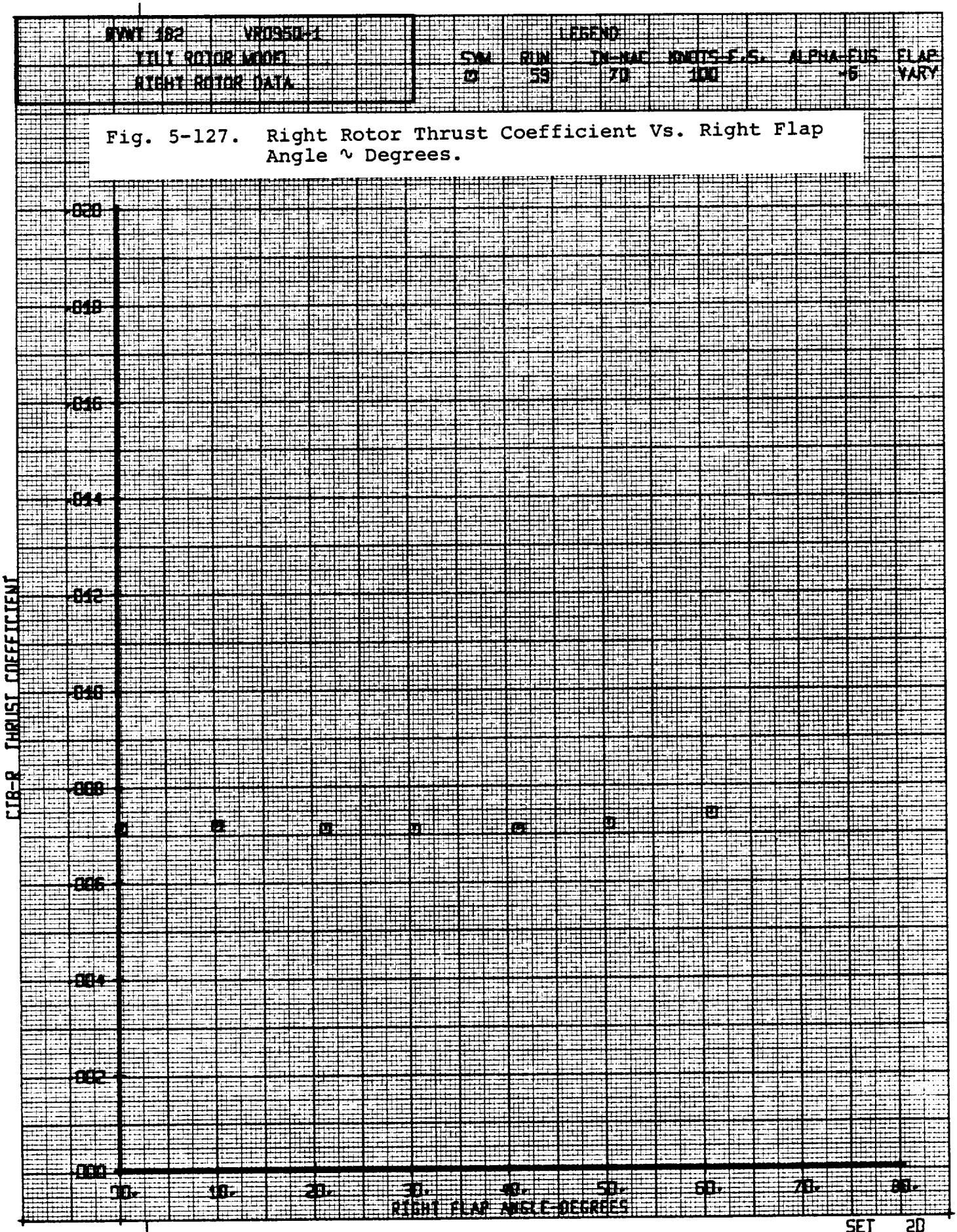


Fig. 5-127. Right Rotor Thrust Coefficient Vs. Right Flap Angle ∿ Degrees.

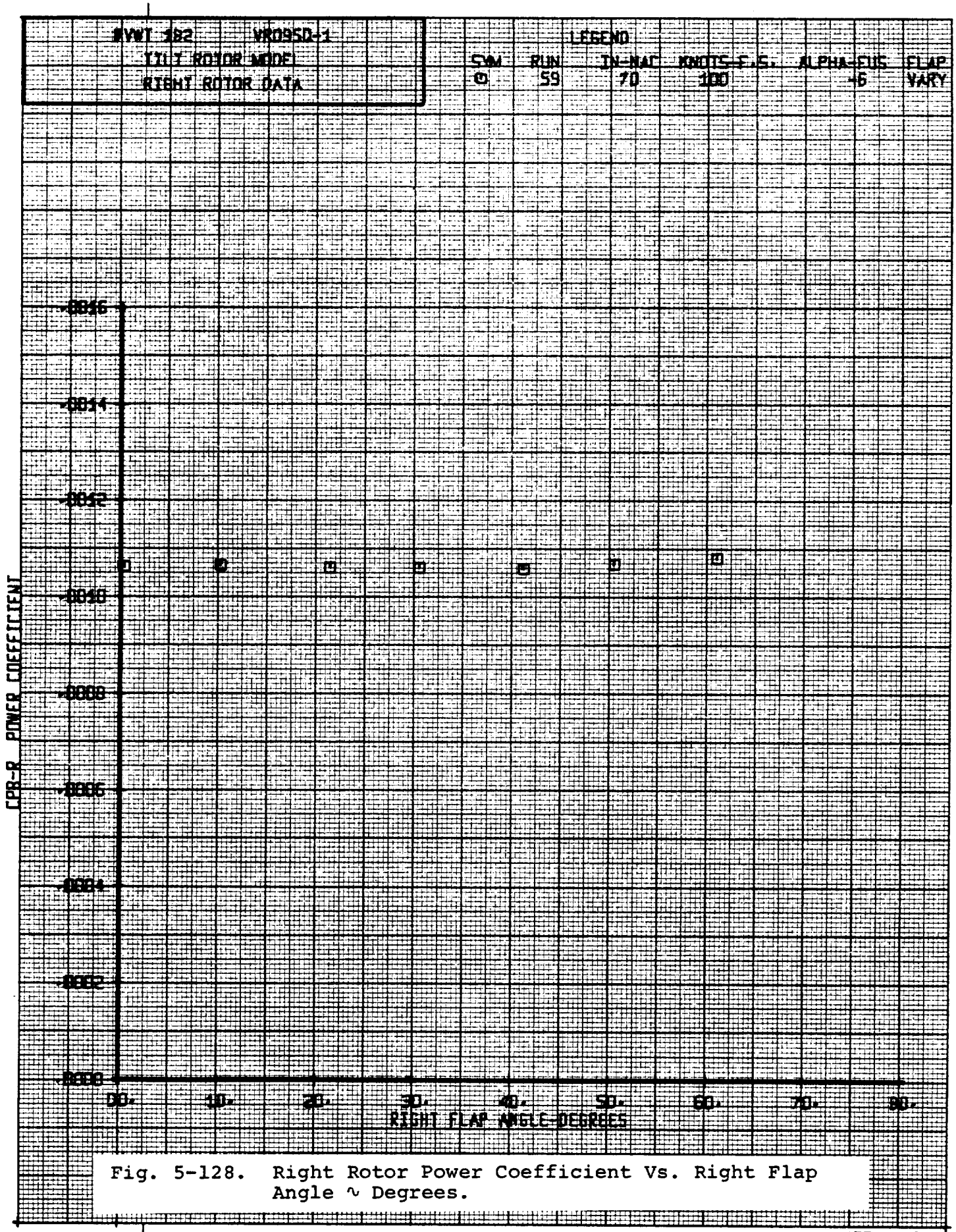


Fig. 5-128. Right Rotor Power Coefficient Vs. Right Flap Angle ∿ Degrees.

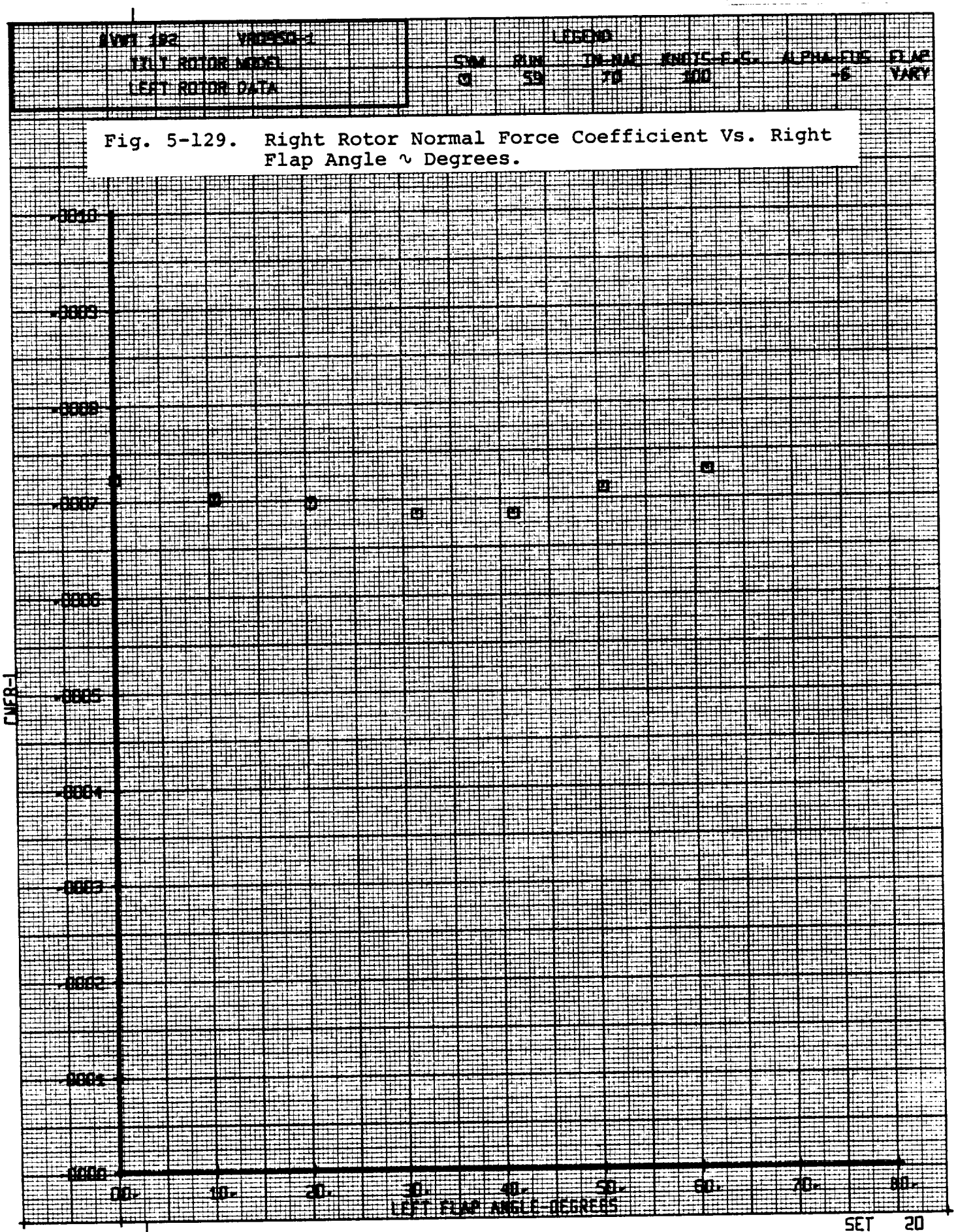


Fig. 5-129. Right Rotor Normal Force Coefficient Vs. Right Flap Angle ∿ Degrees.

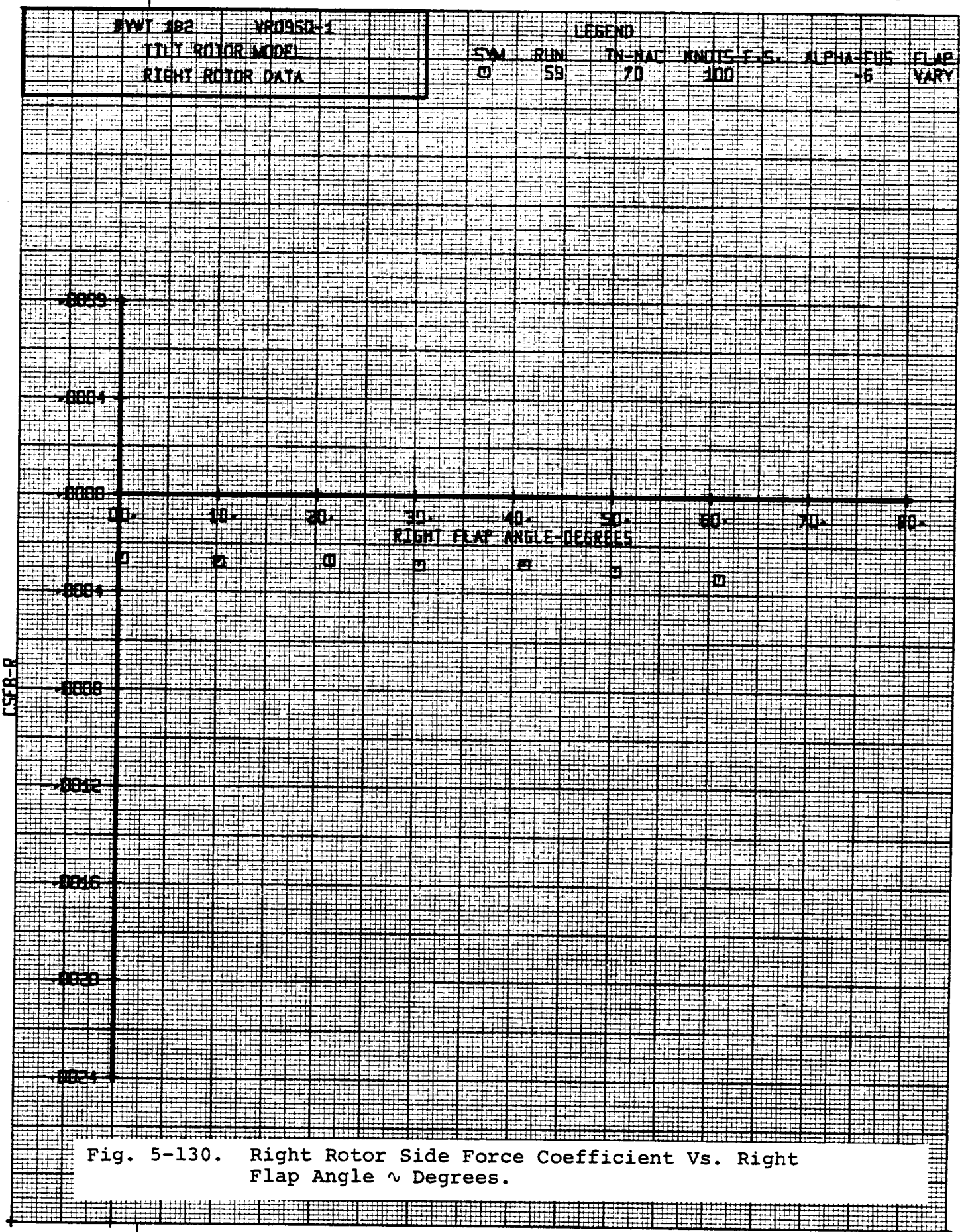


Fig. 5-130. Right Rotor Side Force Coefficient Vs. Right Flap Angle ∿ Degrees.

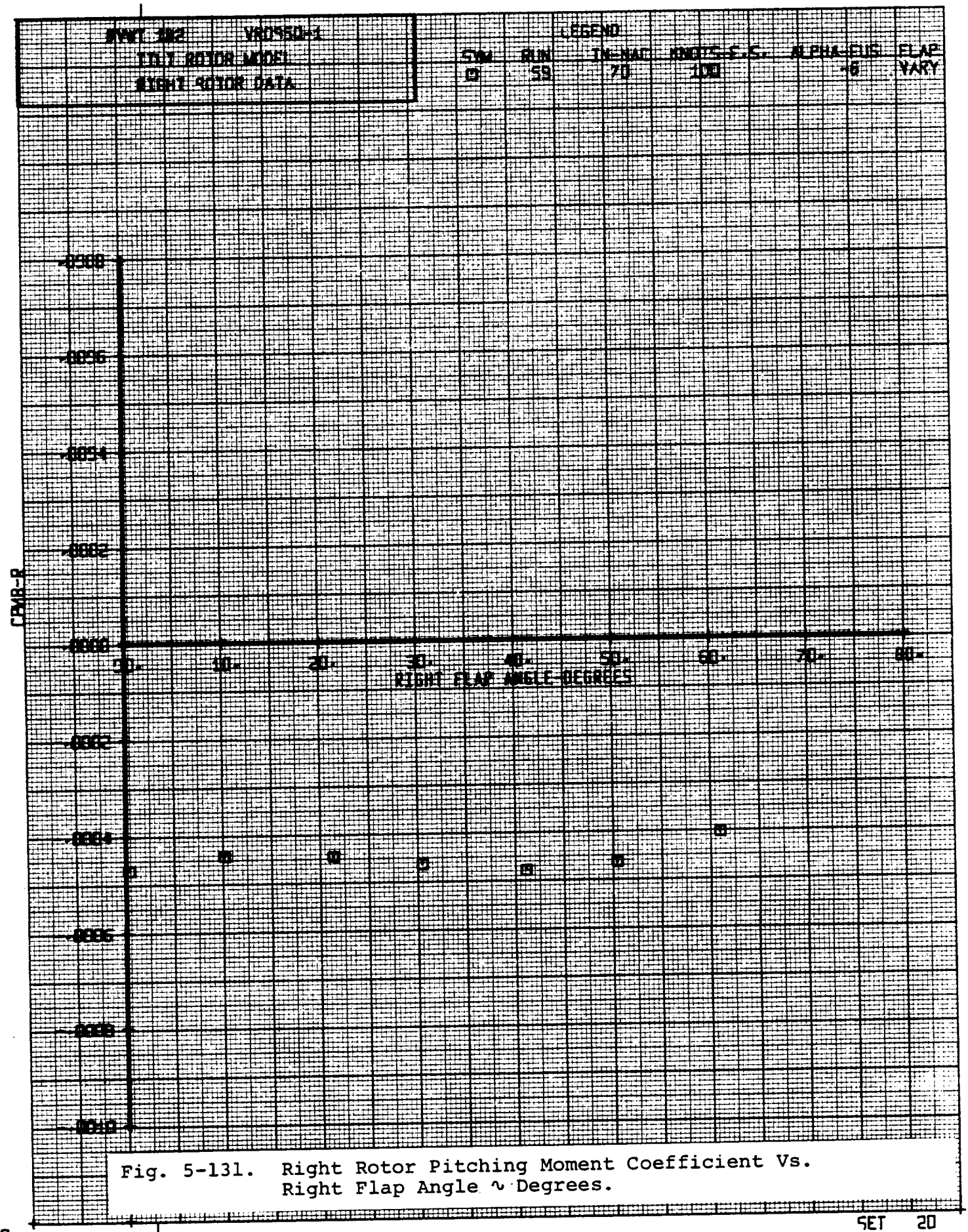


Fig. 5-131. Right Rotor Pitching Moment Coefficient Vs. Right Flap Angle ∿ Degrees.

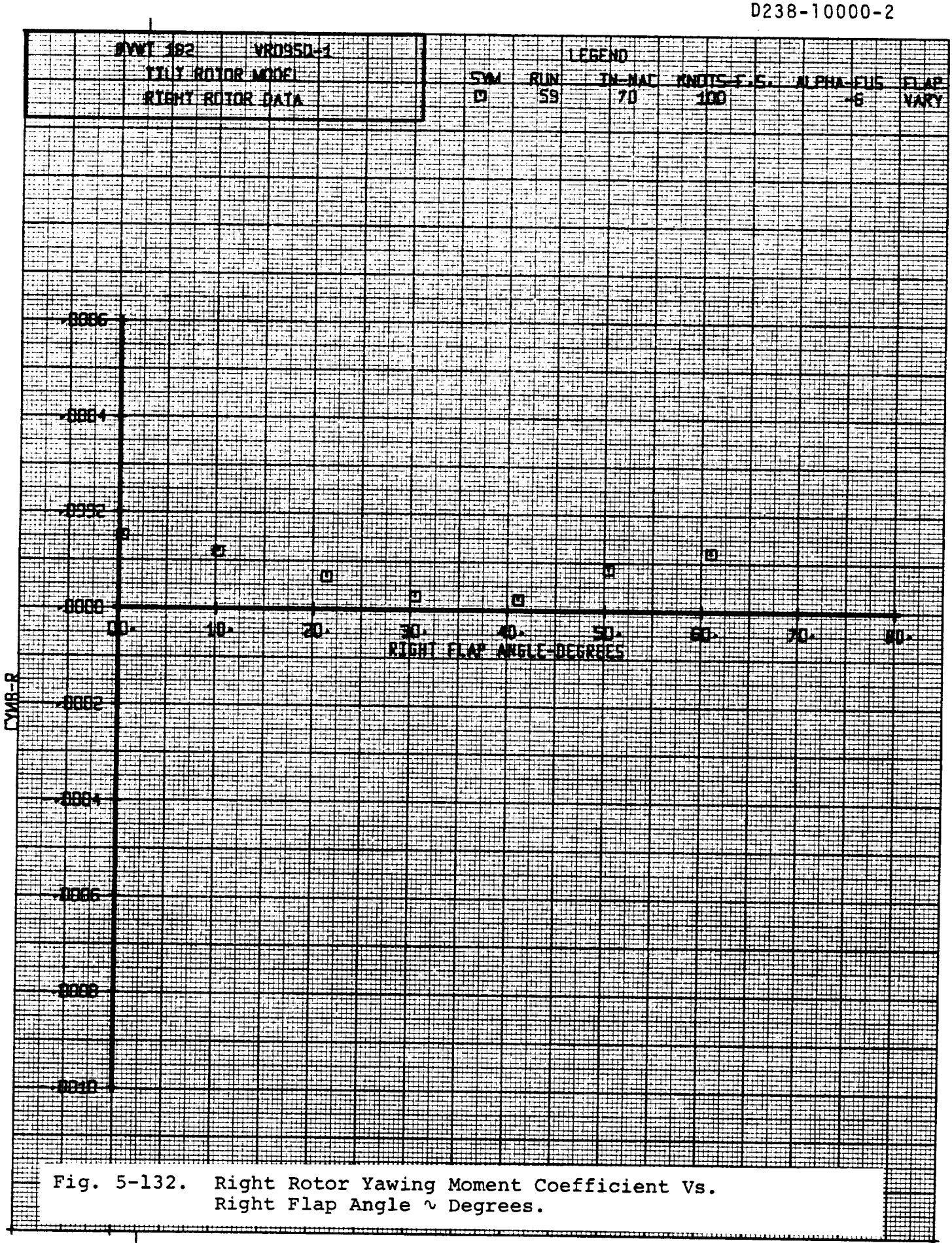


Fig. 5-132. Right Rotor Yawing Moment Coefficient Vs. Right Flap Angle ∿ Degrees.

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182

SET 20
BVWT 182

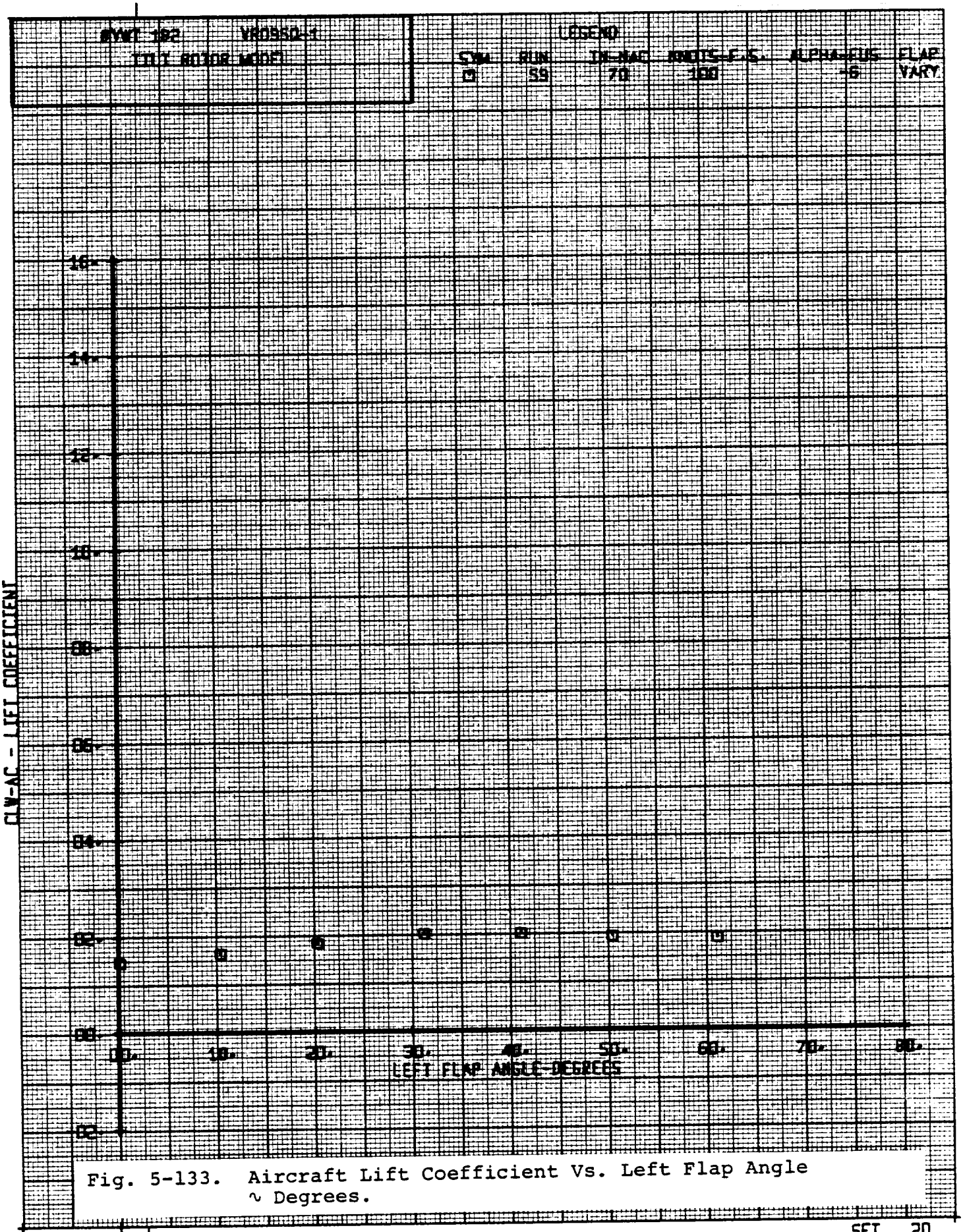


Fig. 5-133. Aircraft Lift Coefficient Vs. Left Flap Angle ∿ Degrees.

ET 20
W 182

SET 20
BVWT 182

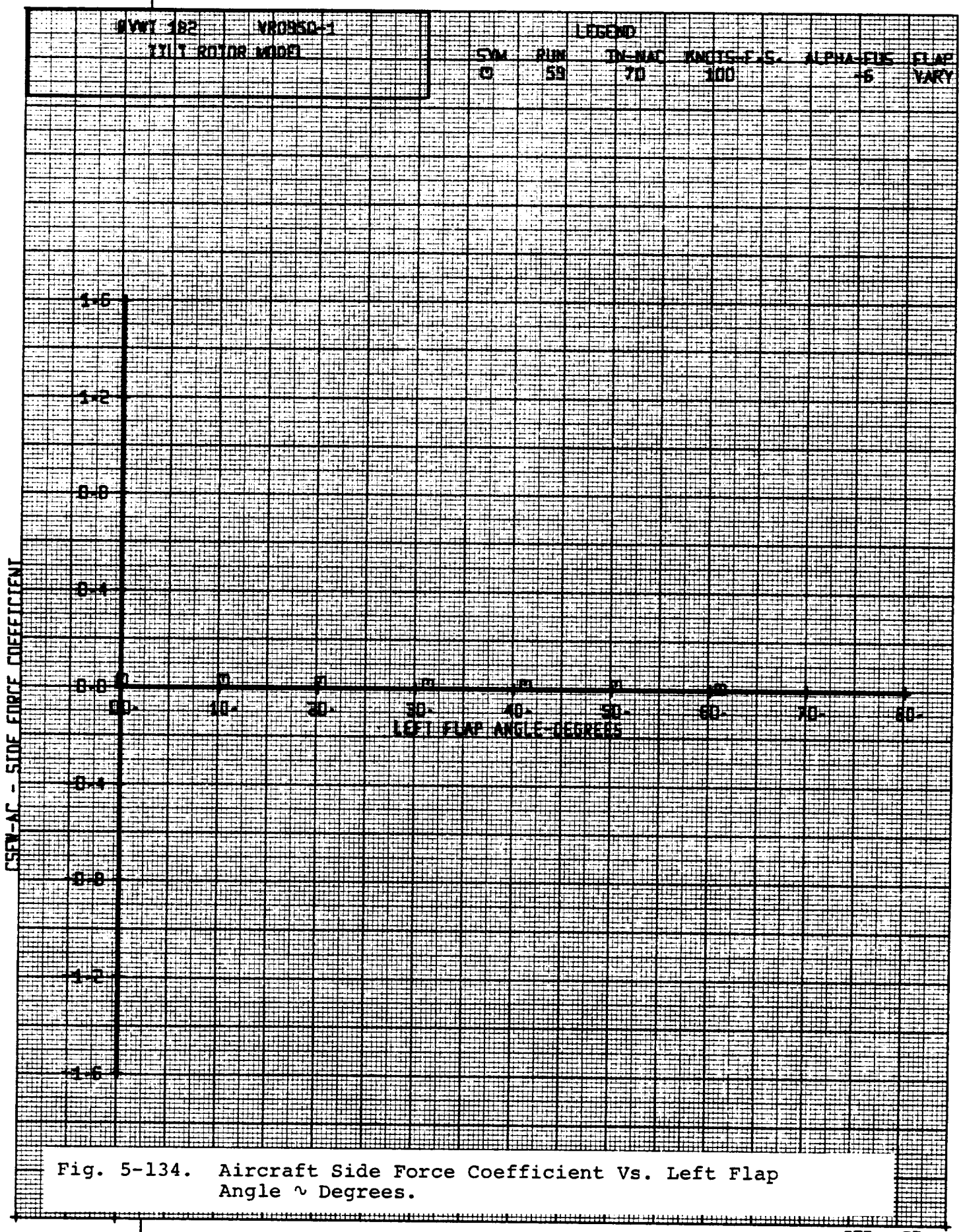


Fig. 5-134. Aircraft Side Force Coefficient Vs. Left Flap Angle ∿ Degrees.

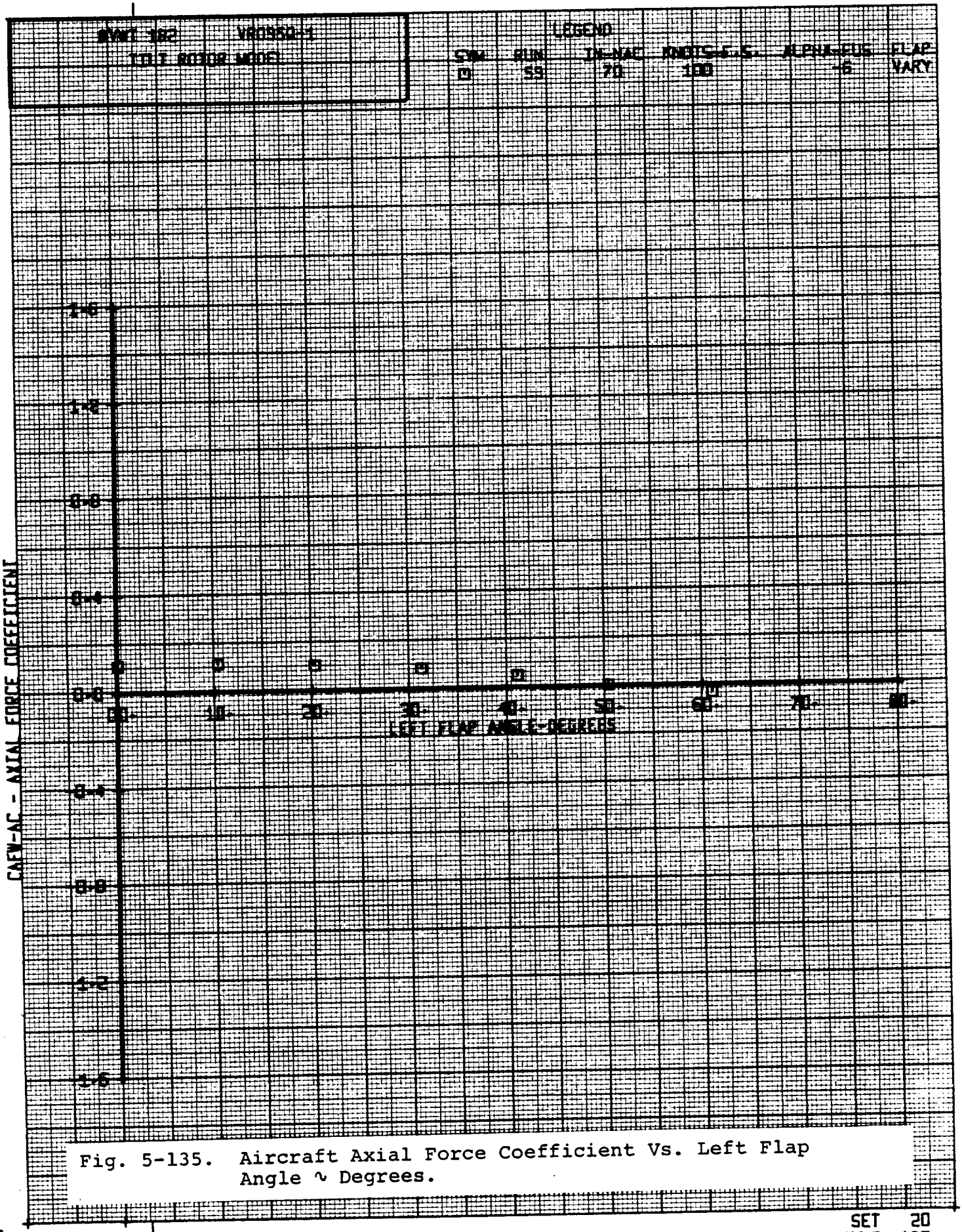


Fig. 5-135. Aircraft Axial Force Coefficient Vs. Left Flap Angle ∿ Degrees.

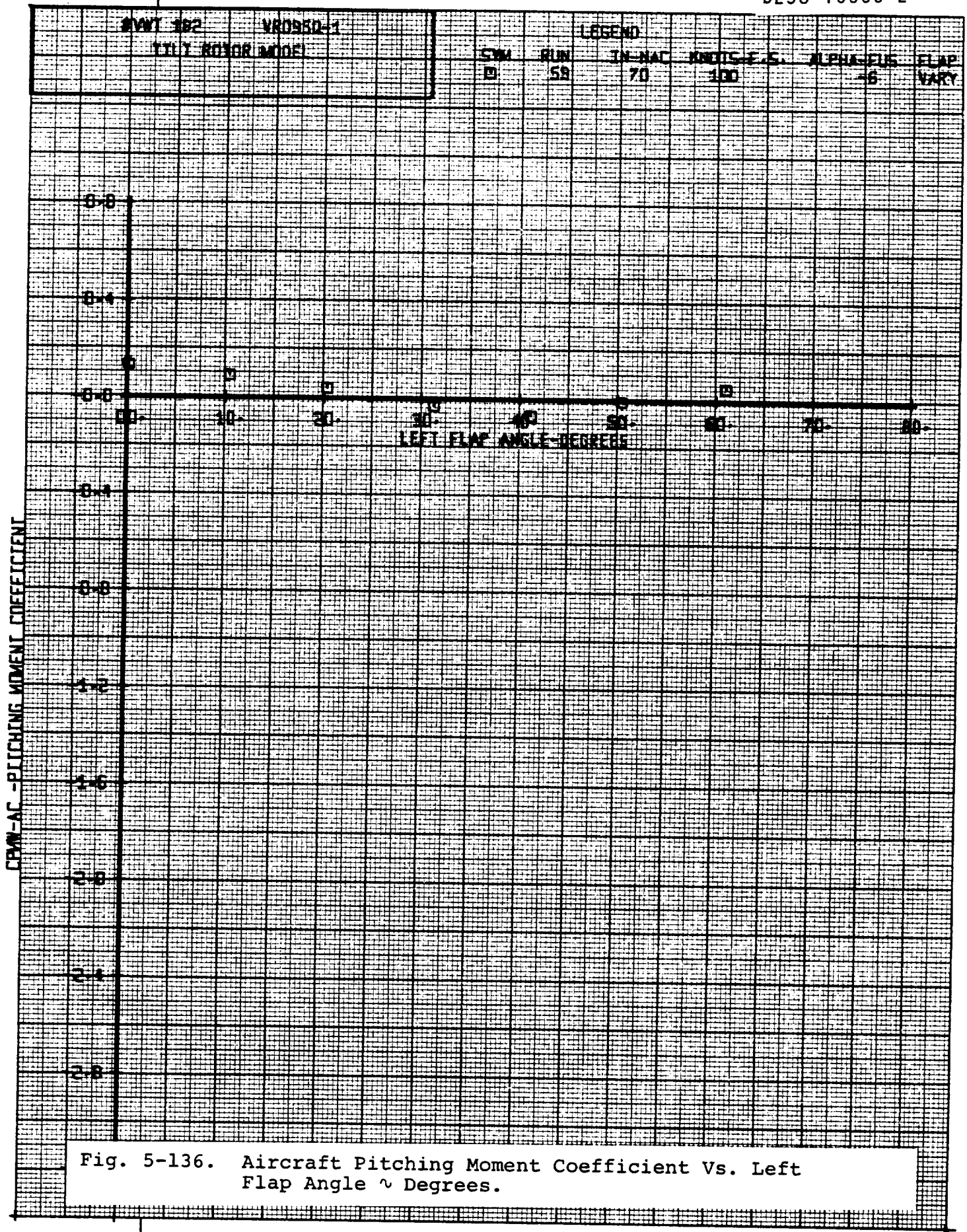


Fig. 5-136. Aircraft Pitching Moment Coefficient Vs. Left Flap Angle ∿ Degrees.

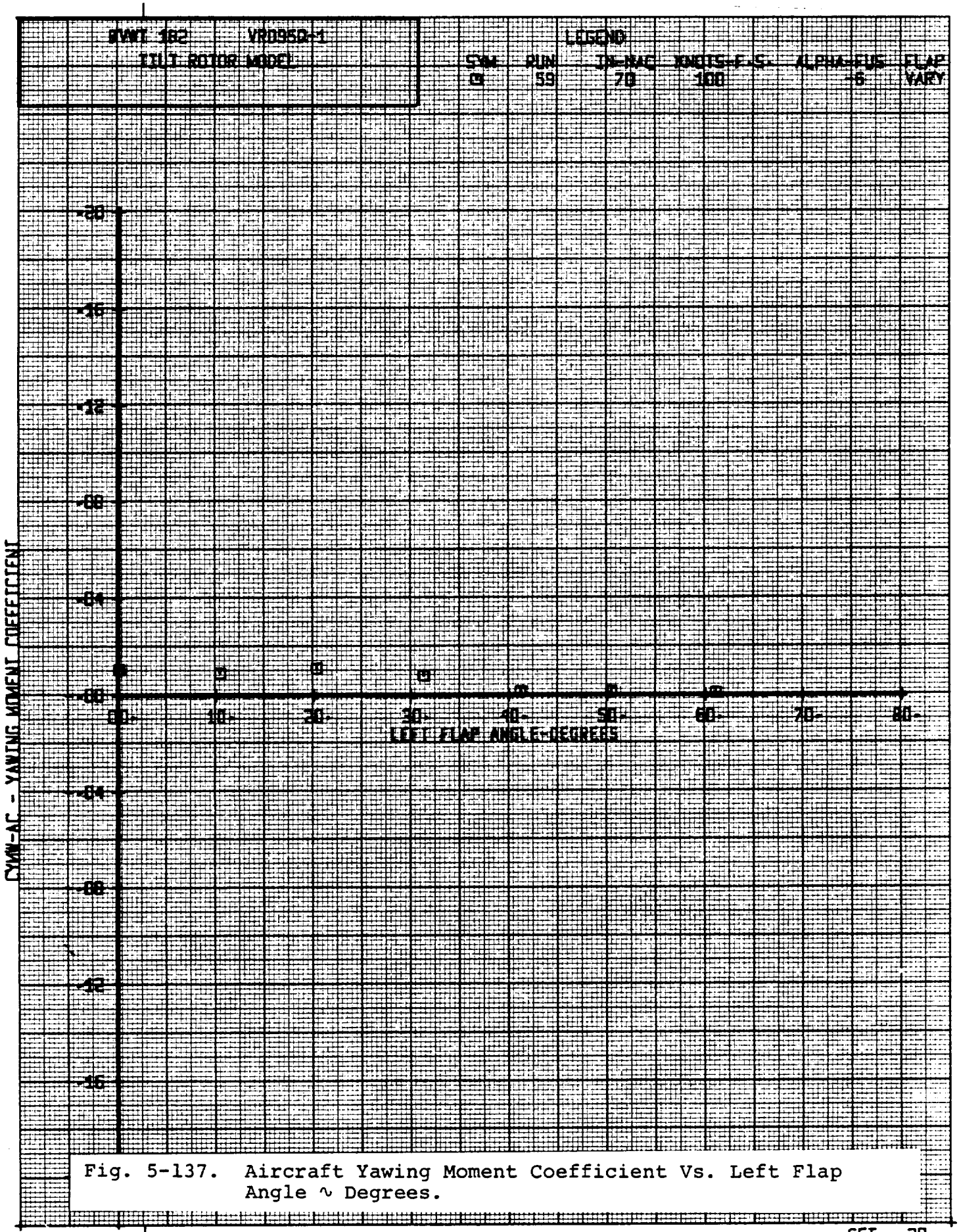


Fig. 5-137. Aircraft Yawing Moment Coefficient Vs. Left Flap Angle ∿ Degrees.

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SET 20
BVWT 182

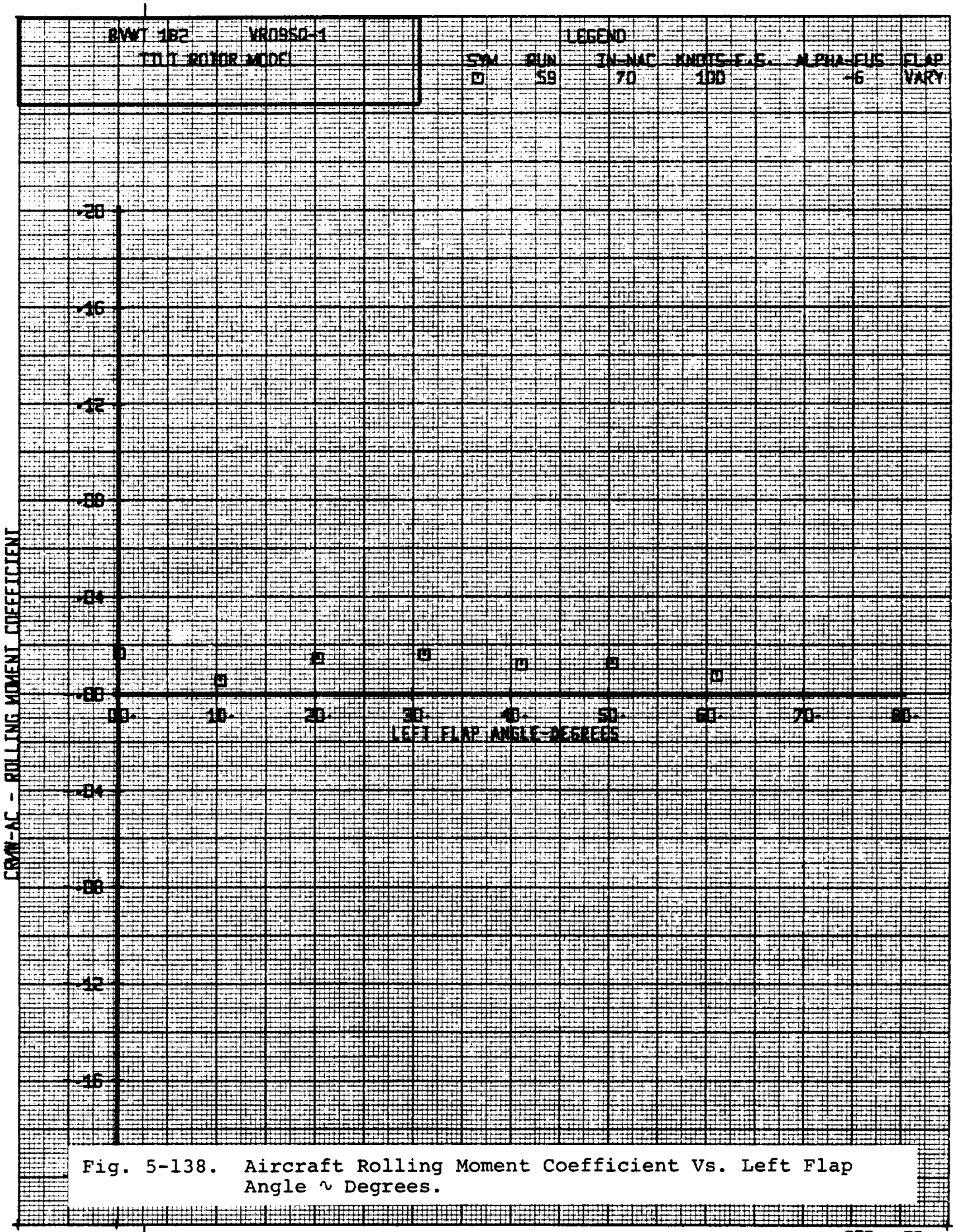


Fig. 5-138. Aircraft Rolling Moment Coefficient Vs. Left Flap Angle ∿ Degrees.

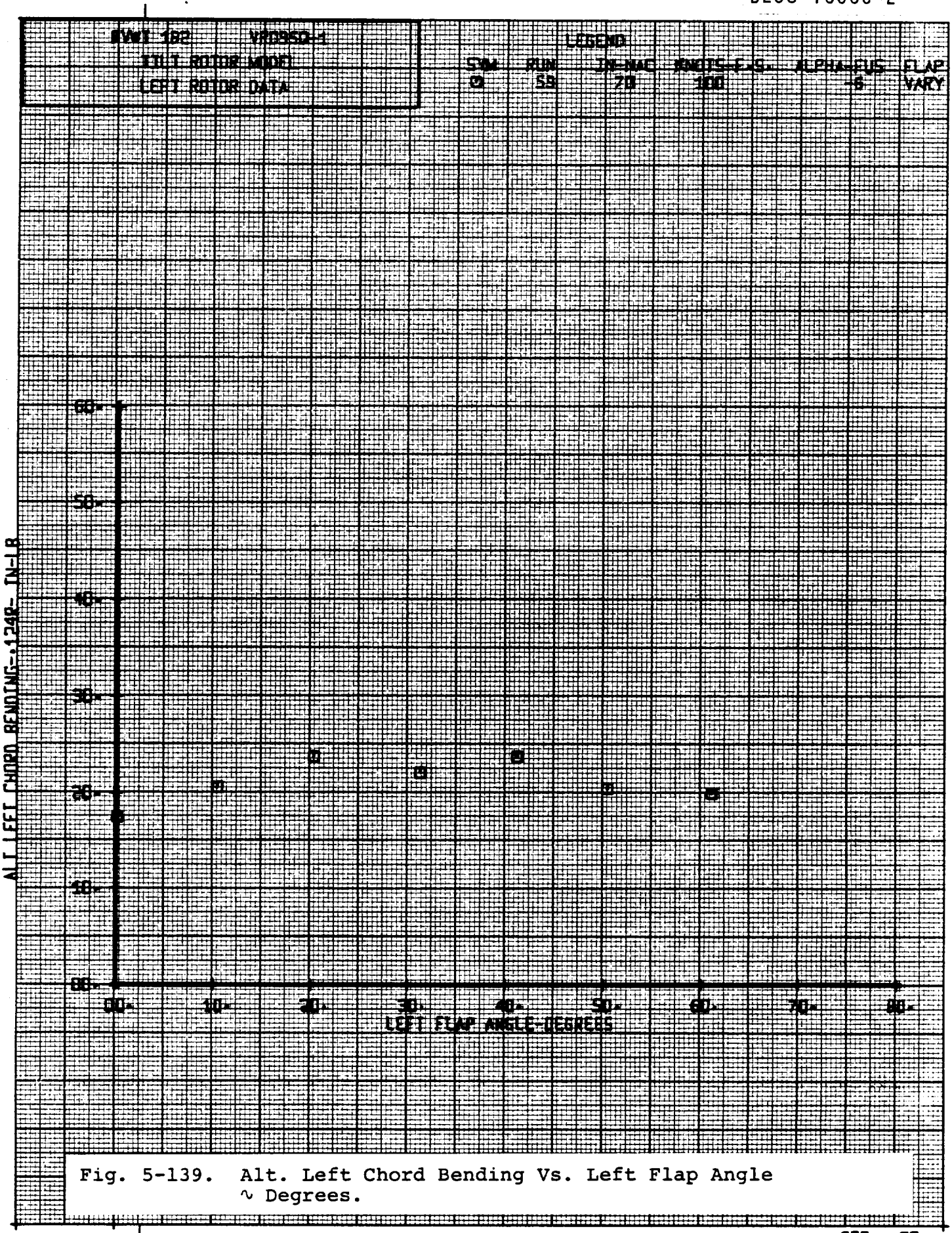


Fig. 5-139. Alt. Left Chord Bending Vs. Left Flap Angle ∿ Degrees.

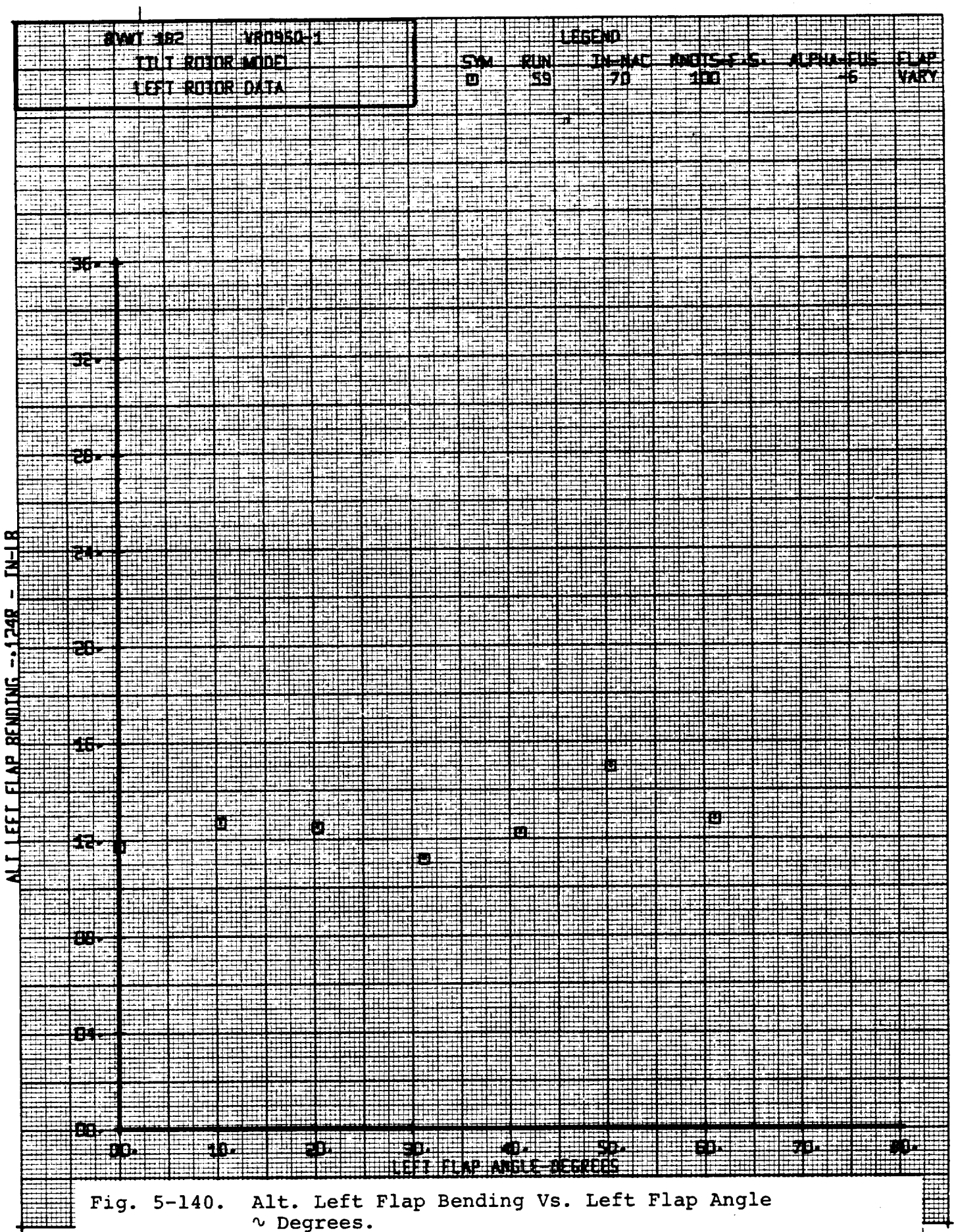


Fig. 5-140. Alt. Left Flap Bending Vs. Left Flap Angle ∿ Degrees.

20
182

BVWT 182

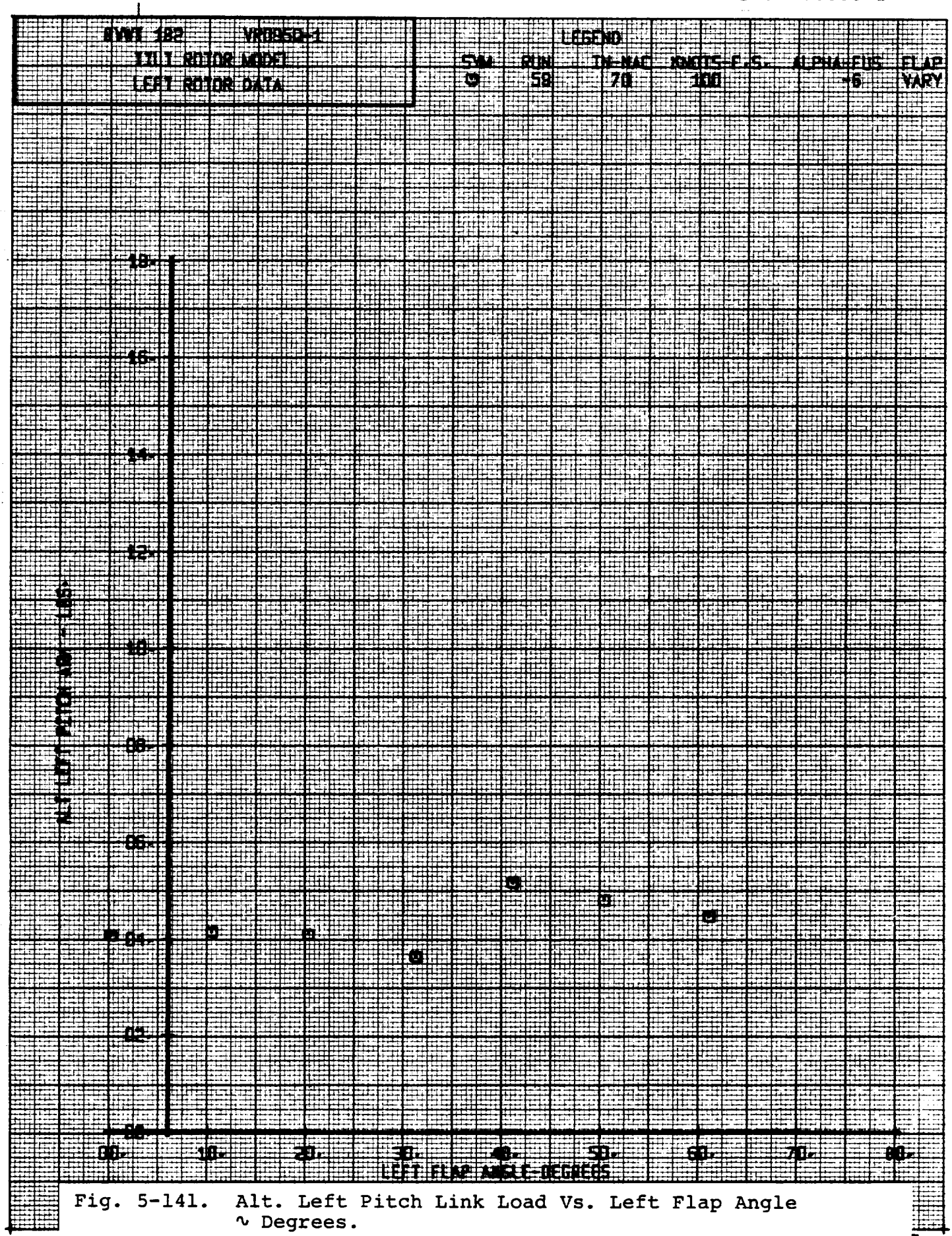


Fig. 5-141. Alt. Left Pitch Link Load Vs. Left Flap Angle ∿ Degrees.

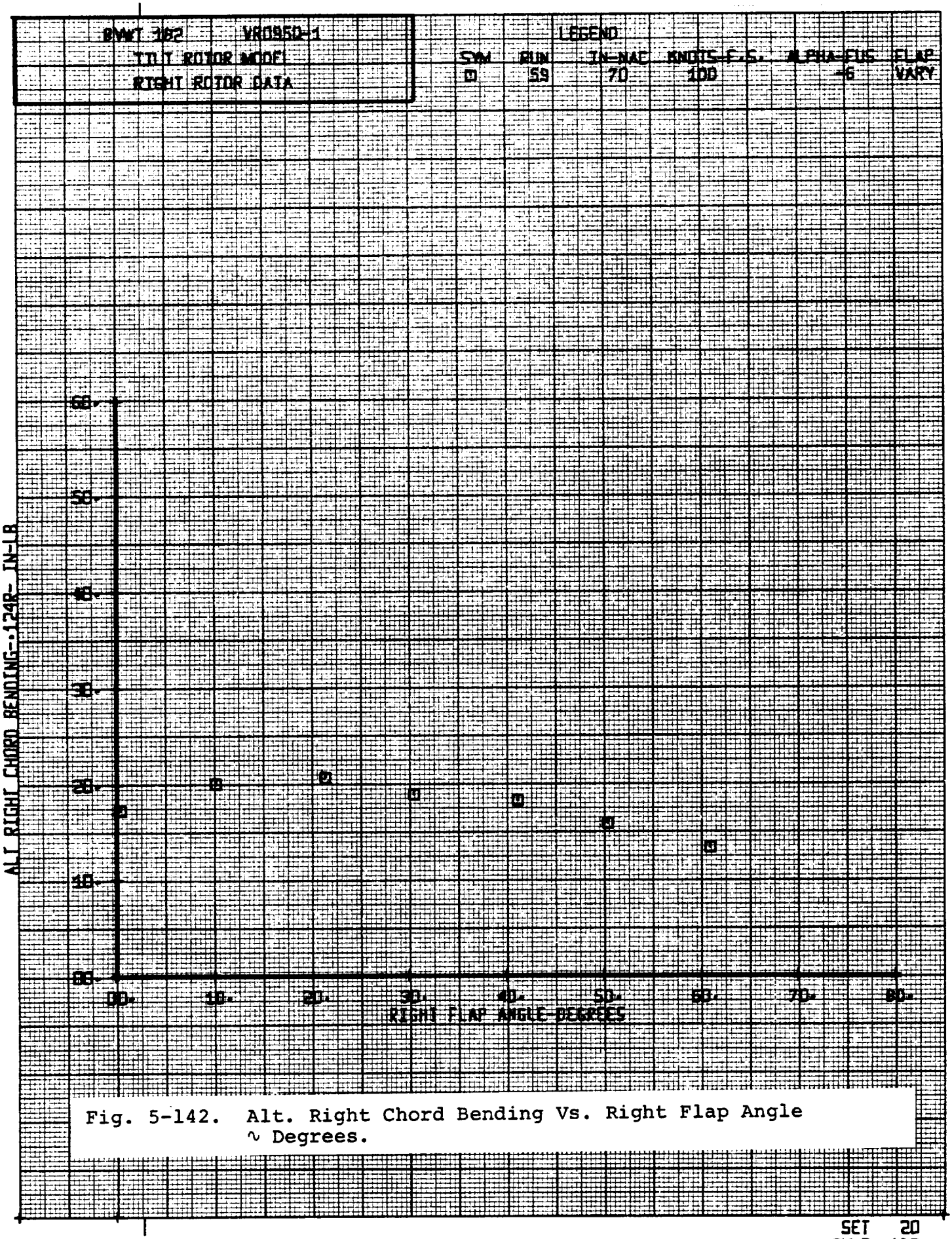


Fig. 5-142. Alt. Right Chord Bending Vs. Right Flap Angle ∿ Degrees.

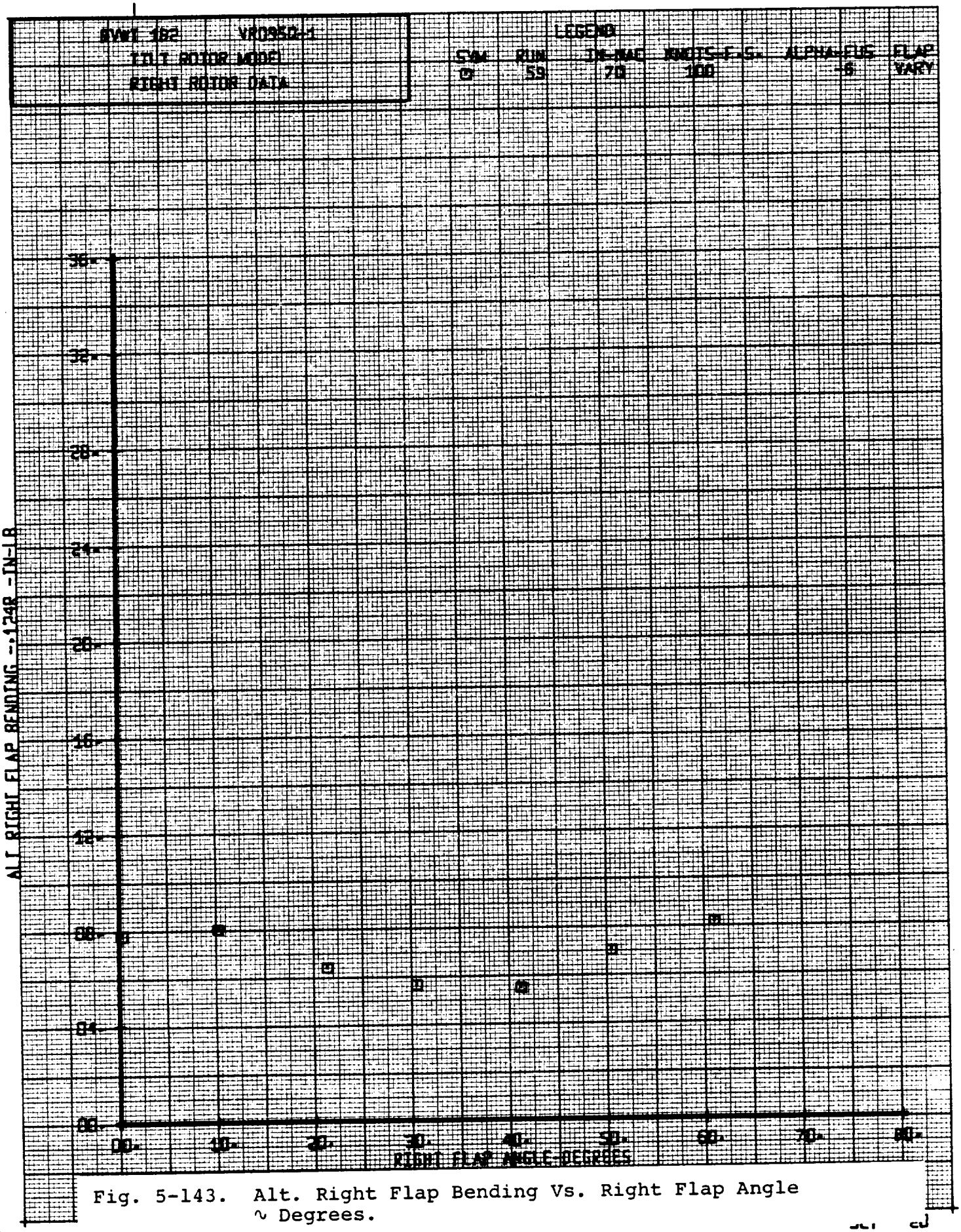


Fig. 5-143. Alt. Right Flap Bending Vs. Right Flap Angle ∿ Degrees.

ET 20
W 182

BWT 182

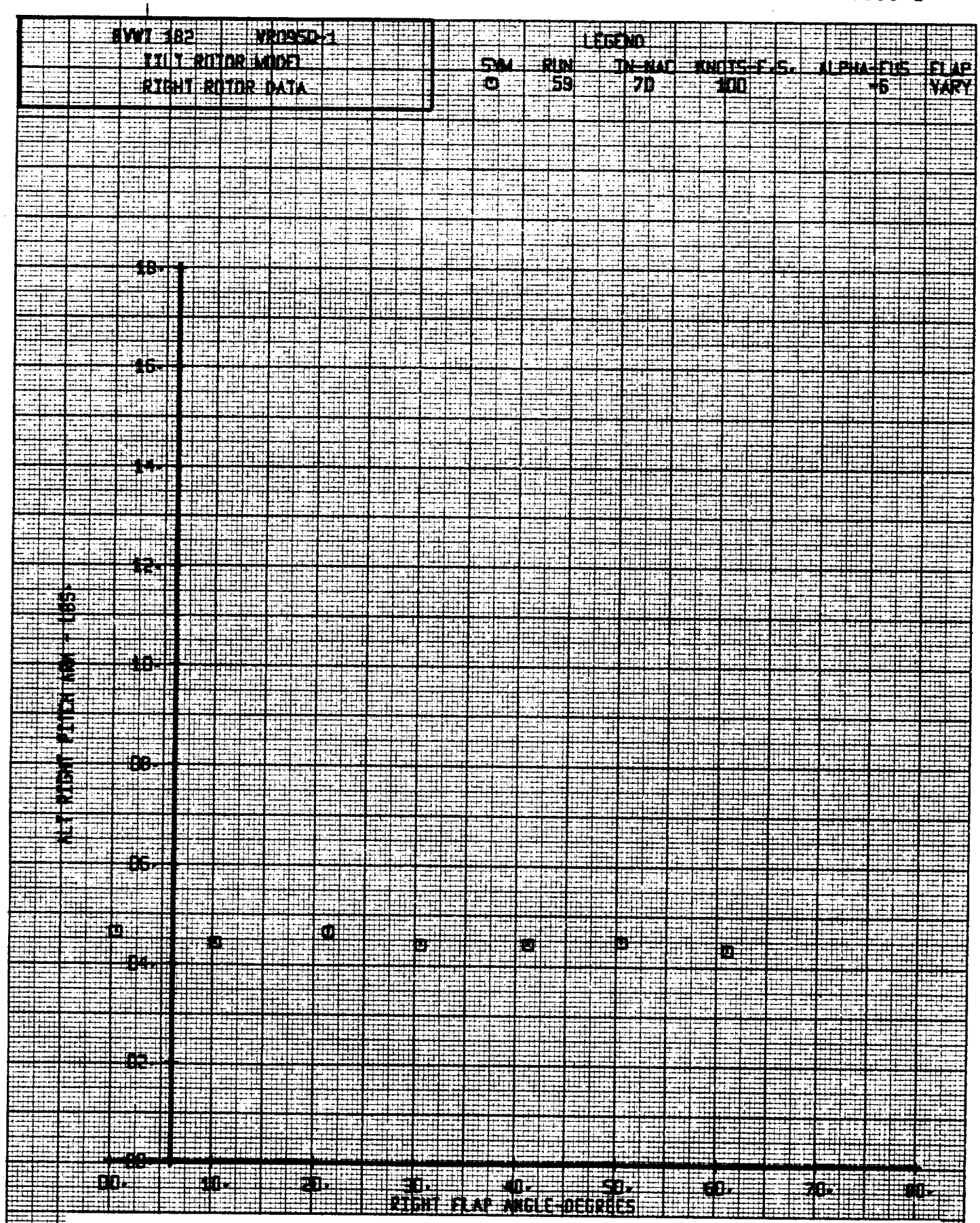


Fig. 5-144. Alt. Right Pitch Link Load Vs. Right Flap Angle ∿ Degrees.

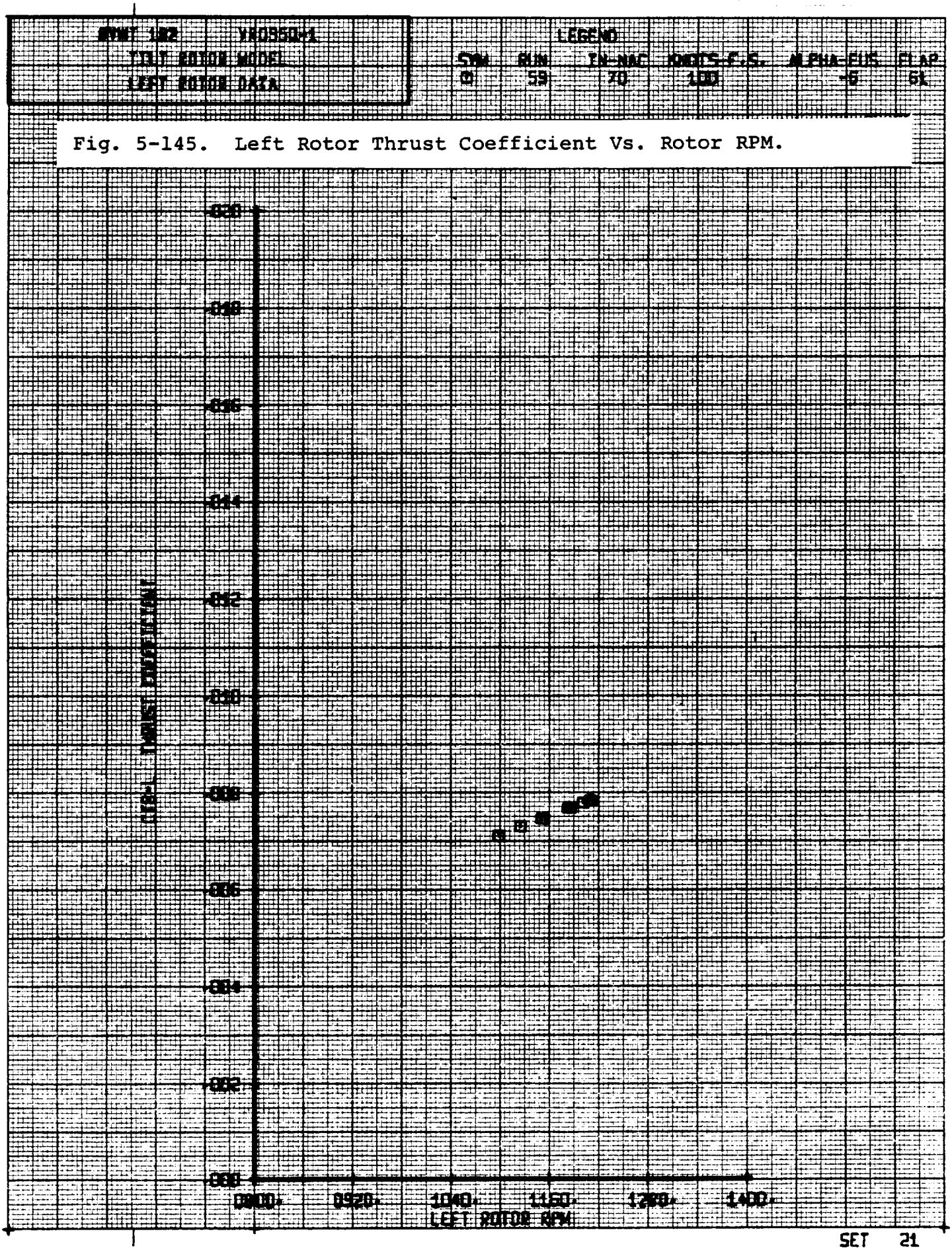


Fig. 5-145. Left Rotor Thrust Coefficient Vs. Rotor RPM.

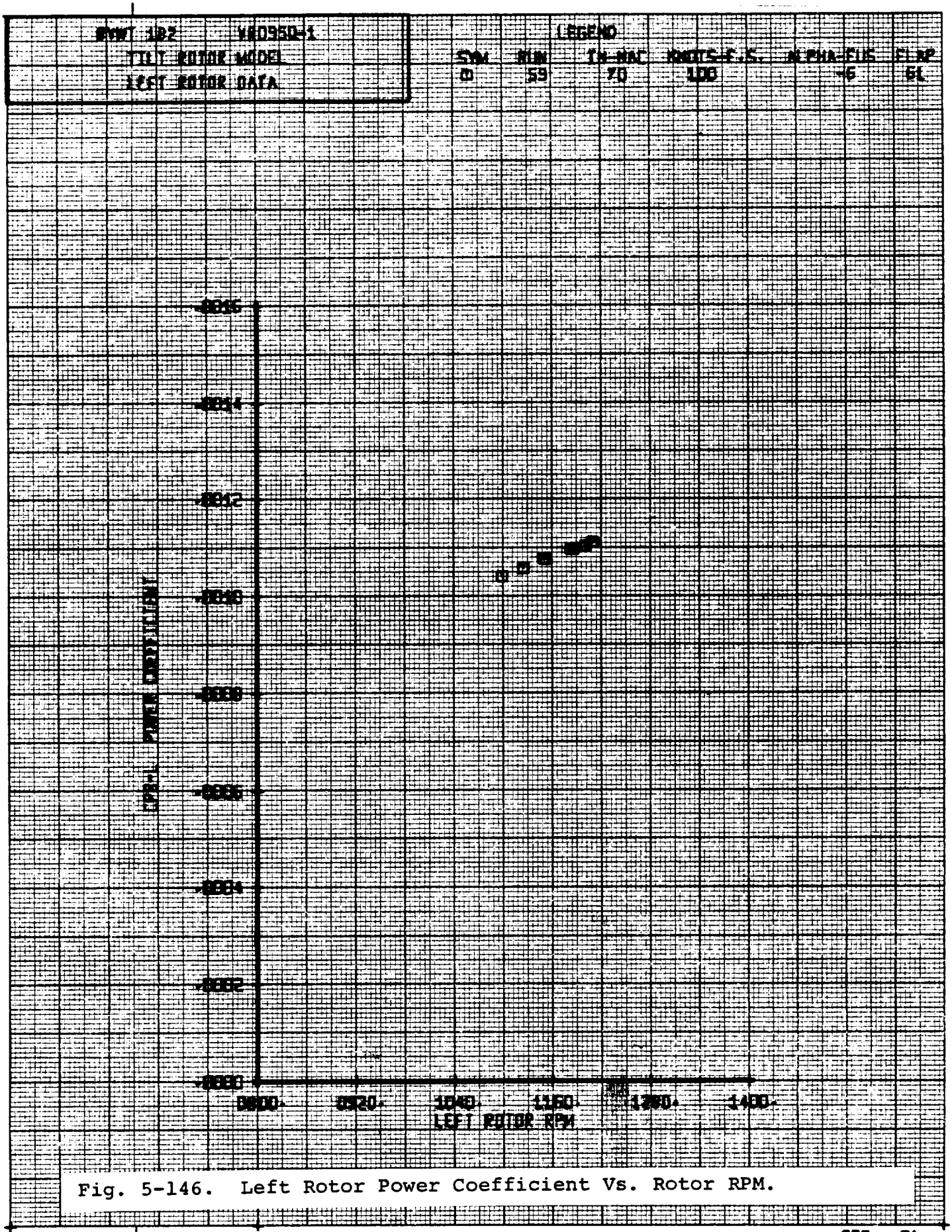


Fig. 5-146. Left Rotor Power Coefficient Vs. Rotor RPM.

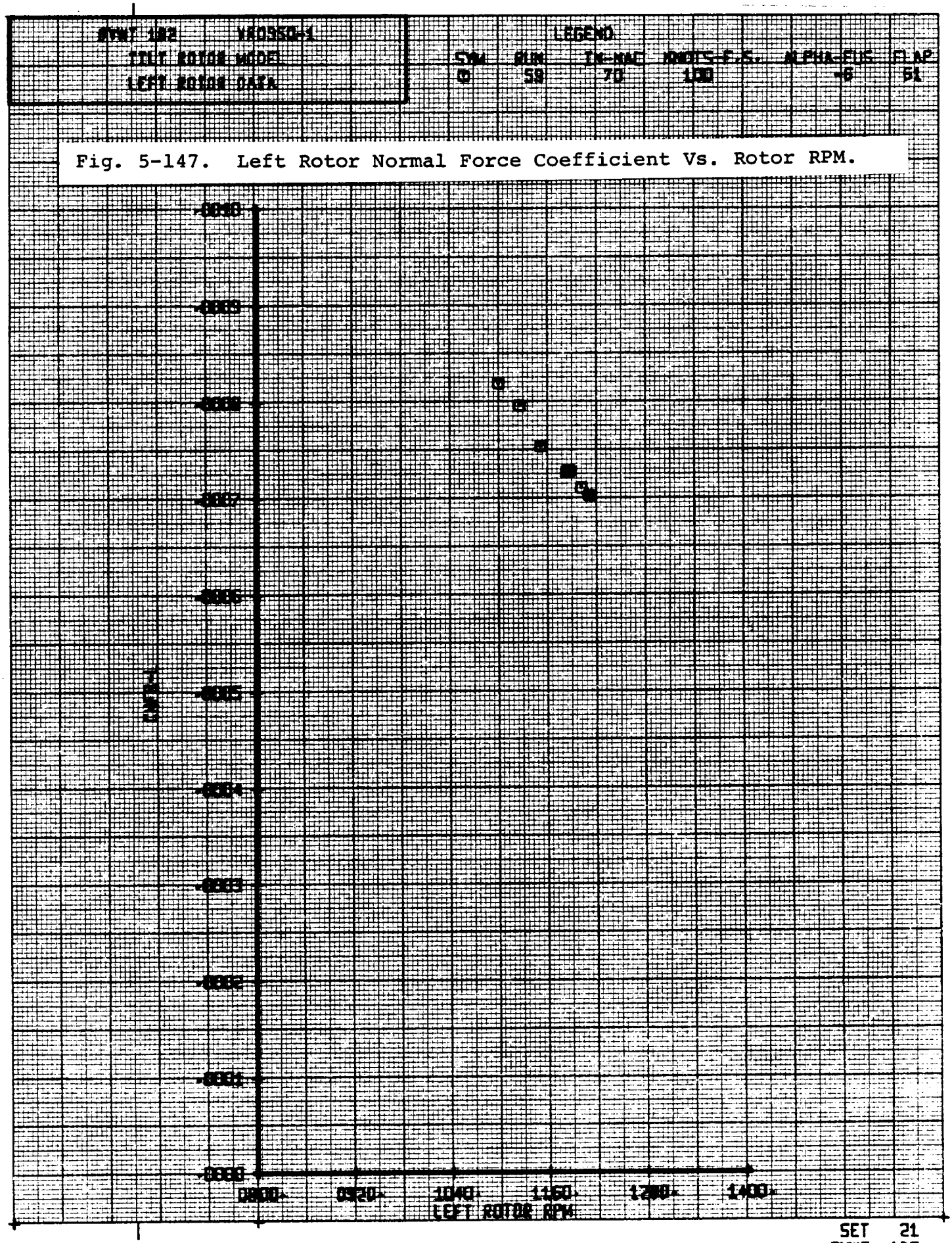


Fig. 5-147. Left Rotor Normal Force Coefficient Vs. Rotor RPM.

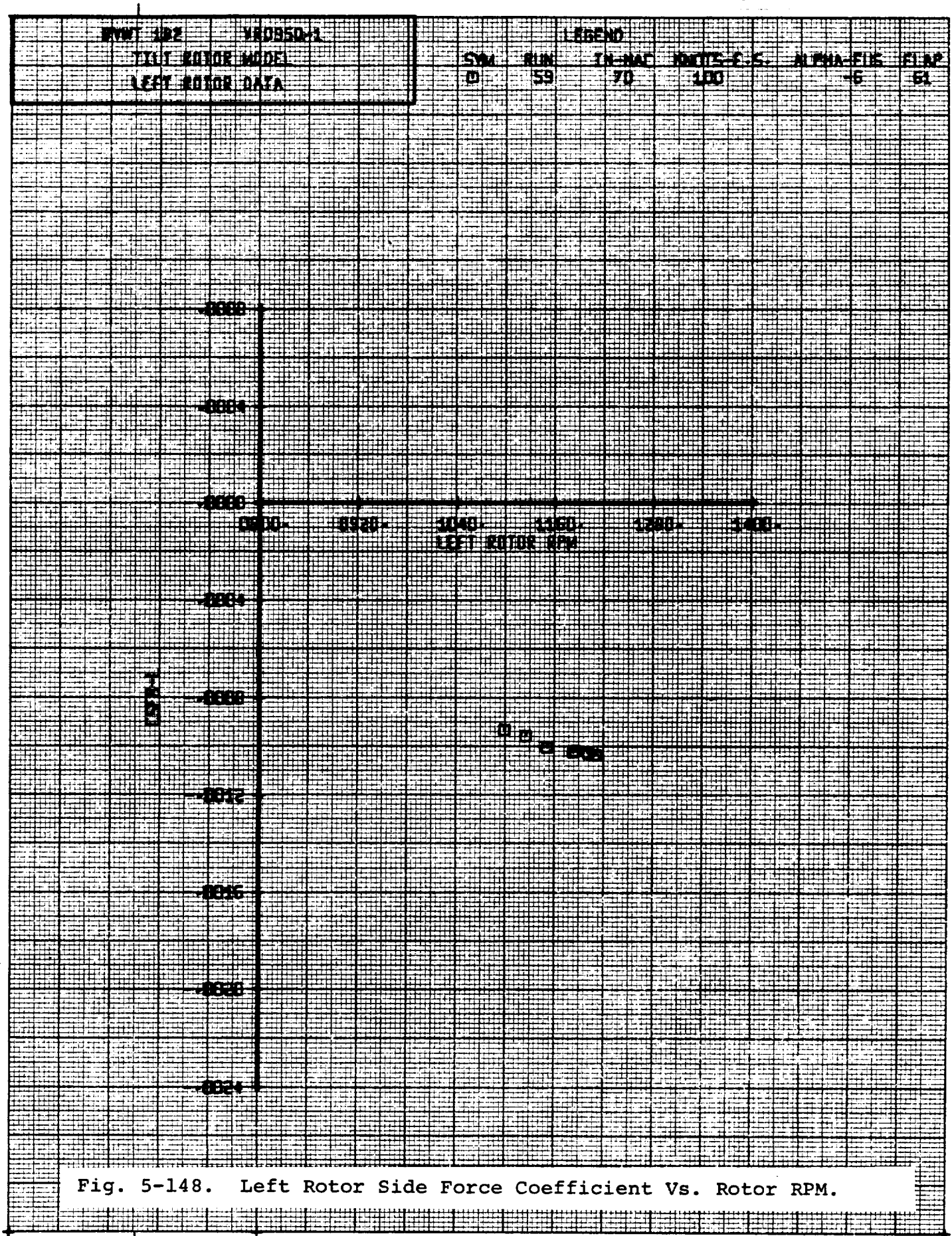


Fig. 5-148. Left Rotor Side Force Coefficient Vs. Rotor RPM.

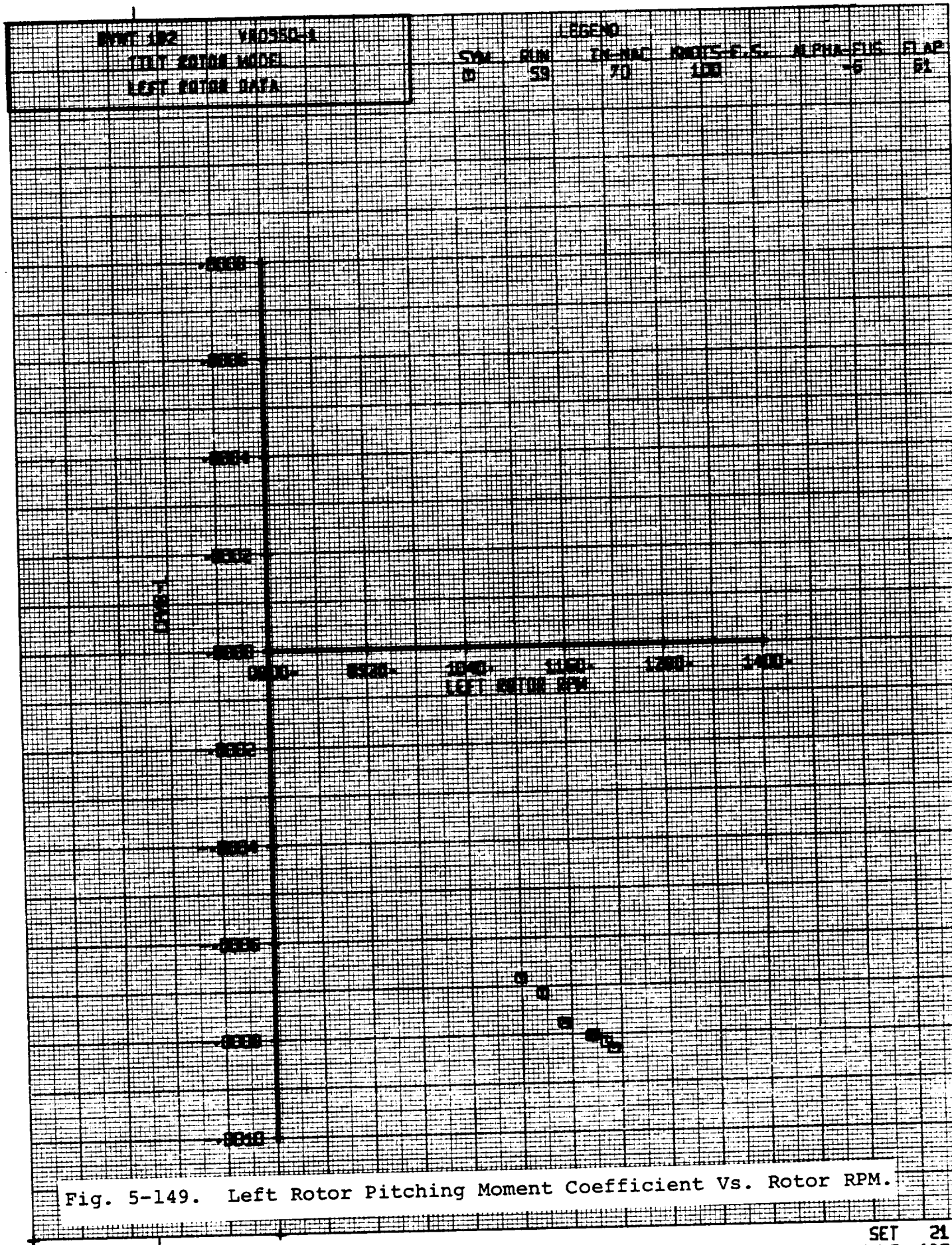


Fig. 5-149. Left Rotor Pitching Moment Coefficient Vs. Rotor RPM.

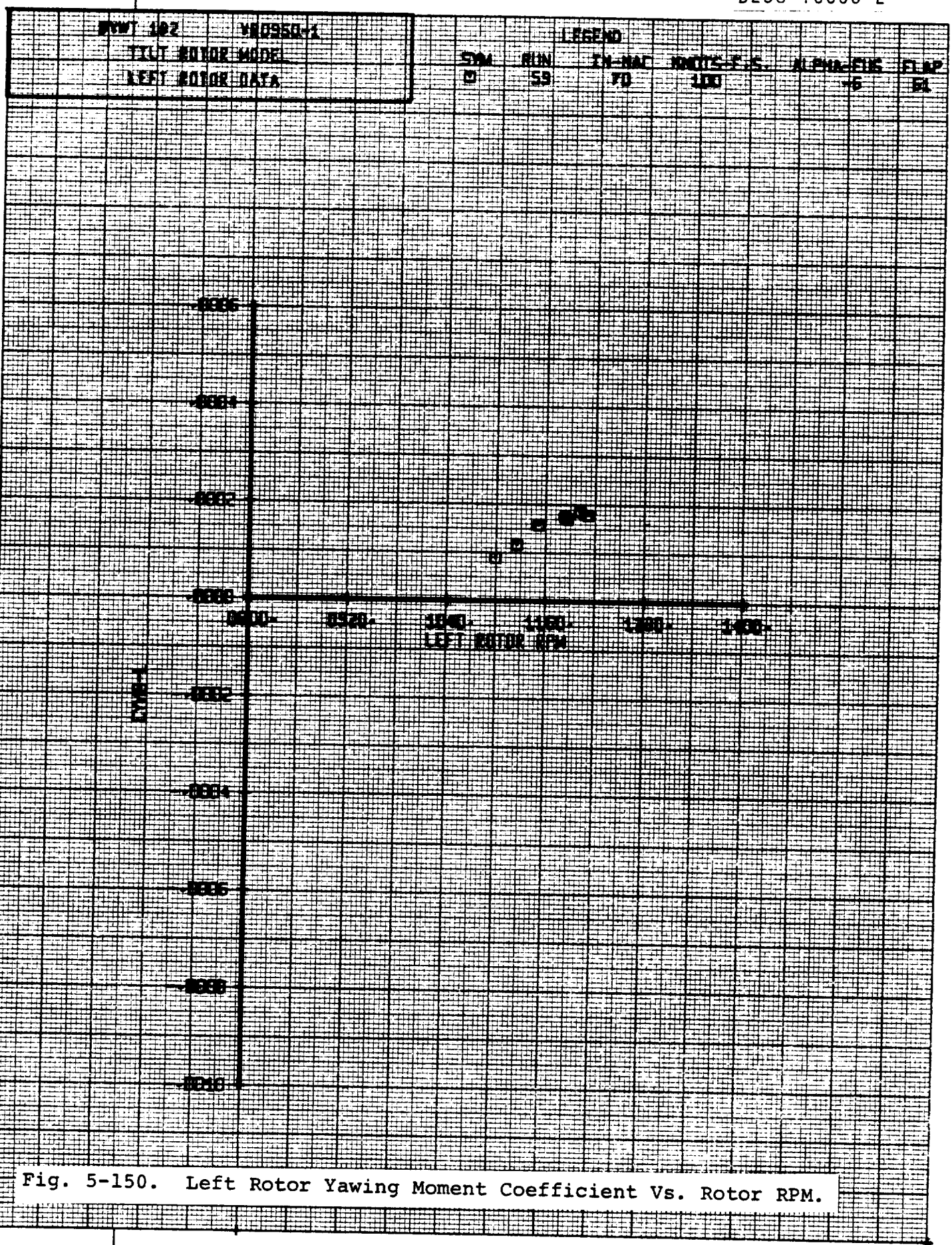


Fig. 5-150. Left Rotor Yawing Moment Coefficient Vs. Rotor RPM.

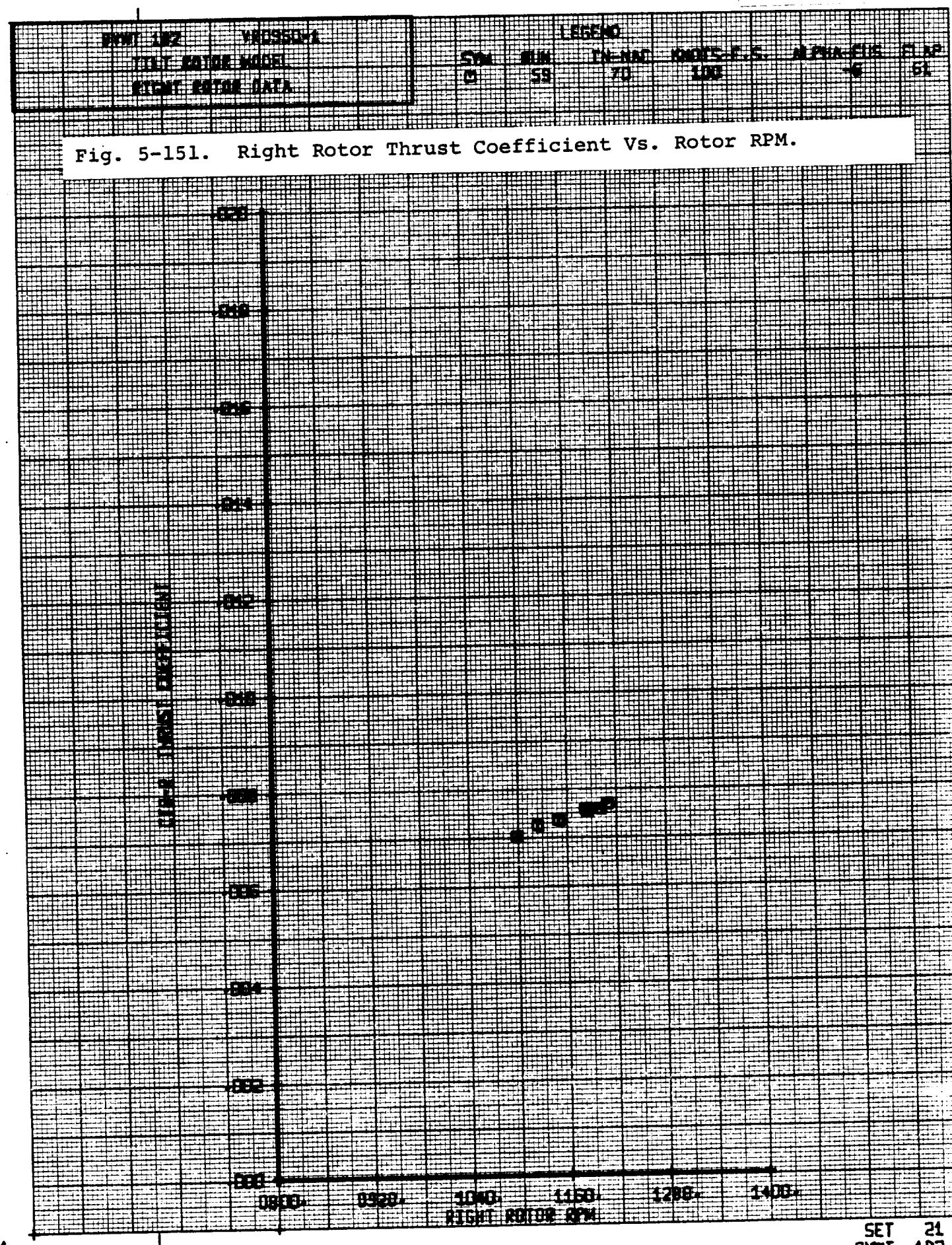


Fig. 5-151. Right Rotor Thrust Coefficient Vs. Rotor RPM.

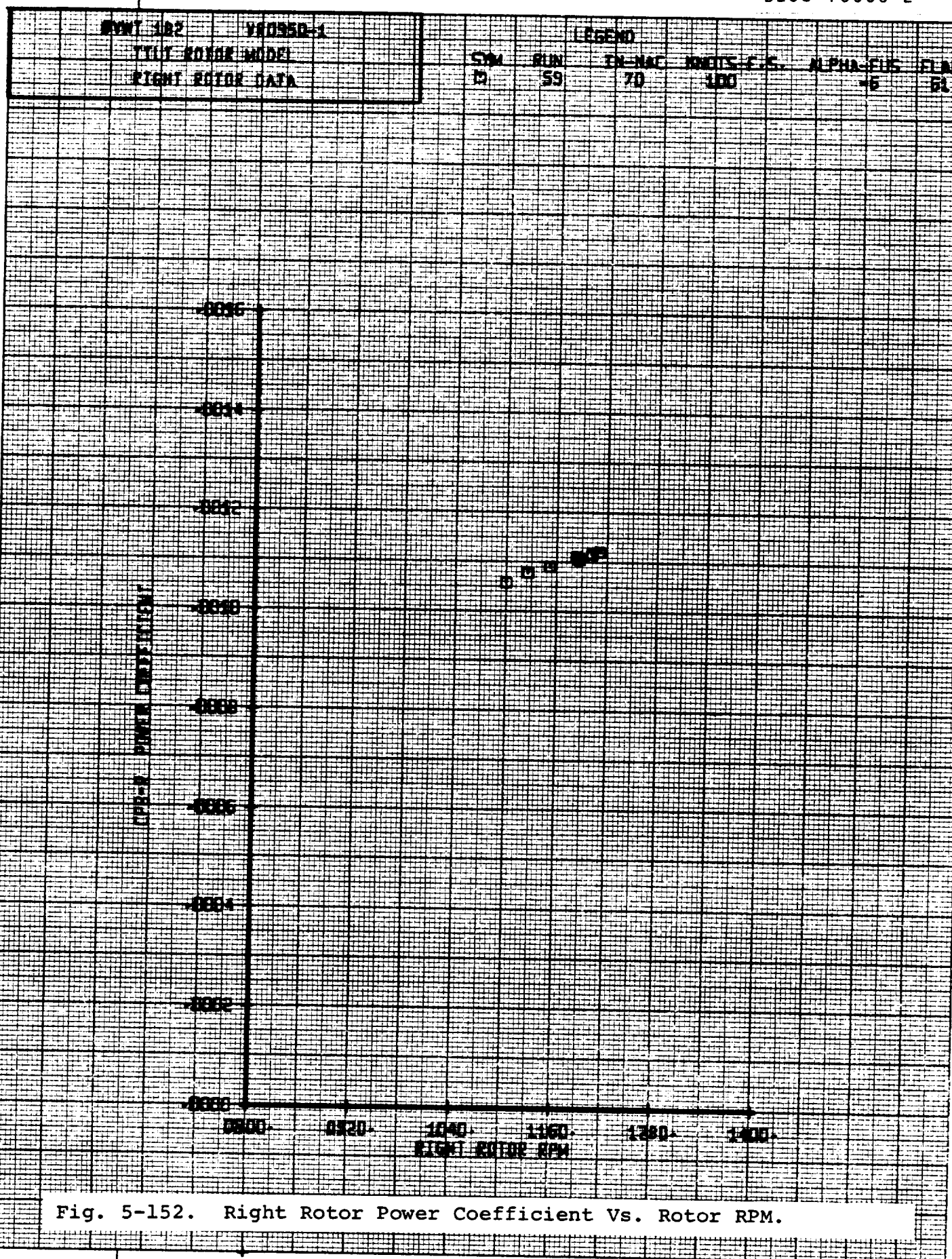


Fig. 5-152. Right Rotor Power Coefficient Vs. Rotor RPM.

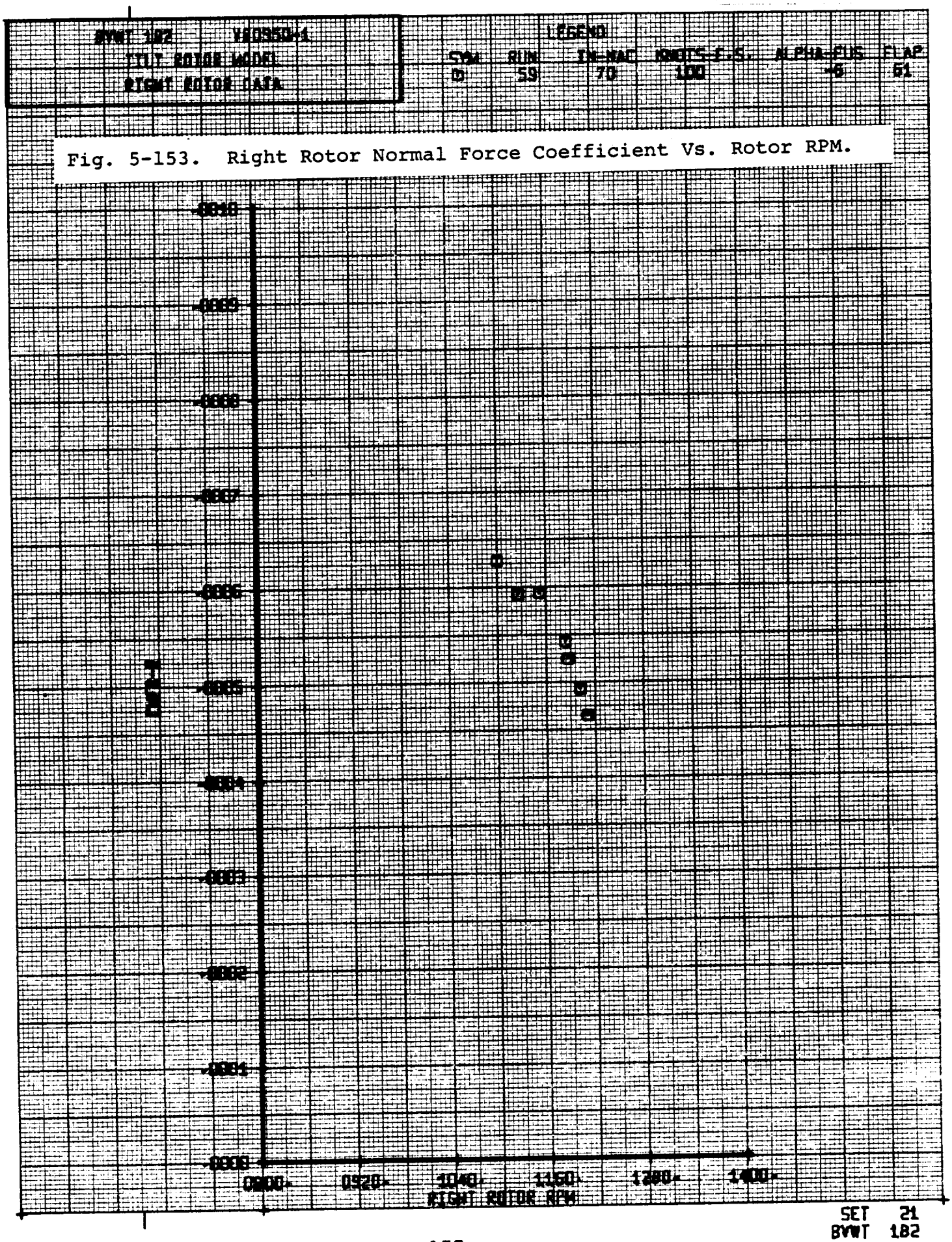


Fig. 5-153. Right Rotor Normal Force Coefficient Vs. Rotor RPM.

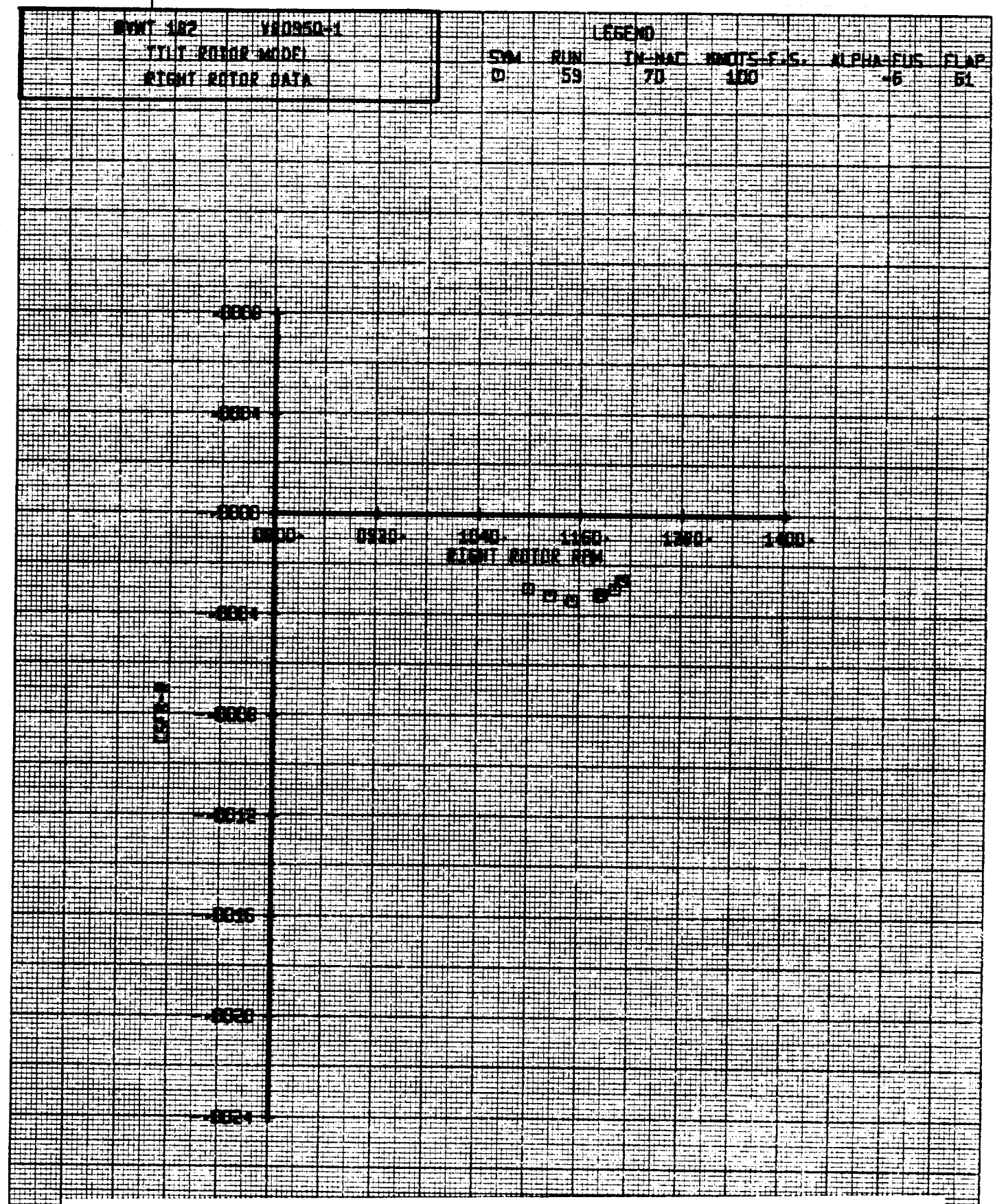


Fig. 5-154. Right Rotor Side Force Coefficient Vs. Rotor RPM.

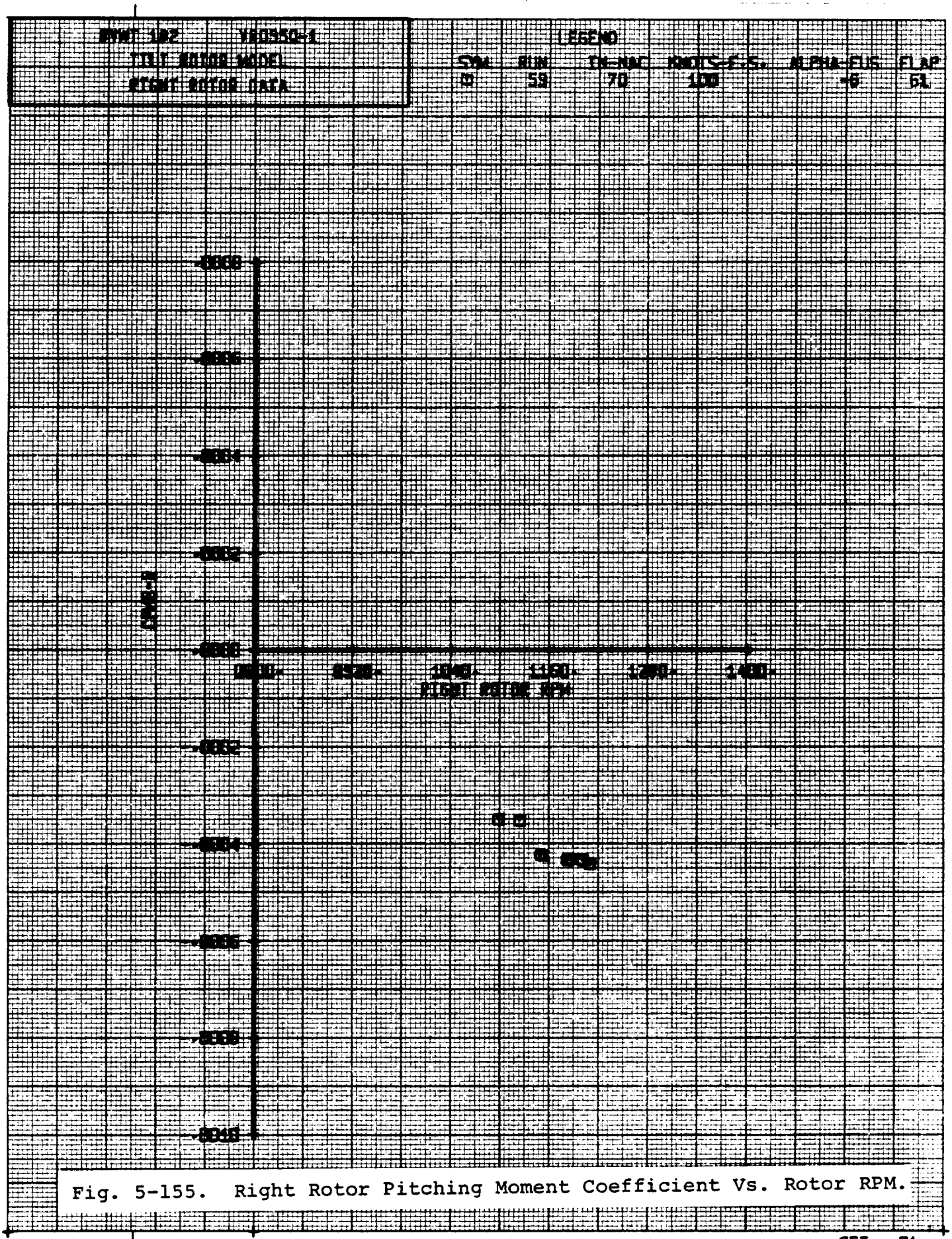


Fig. 5-155. Right Rotor Pitching Moment Coefficient Vs. Rotor RPM.

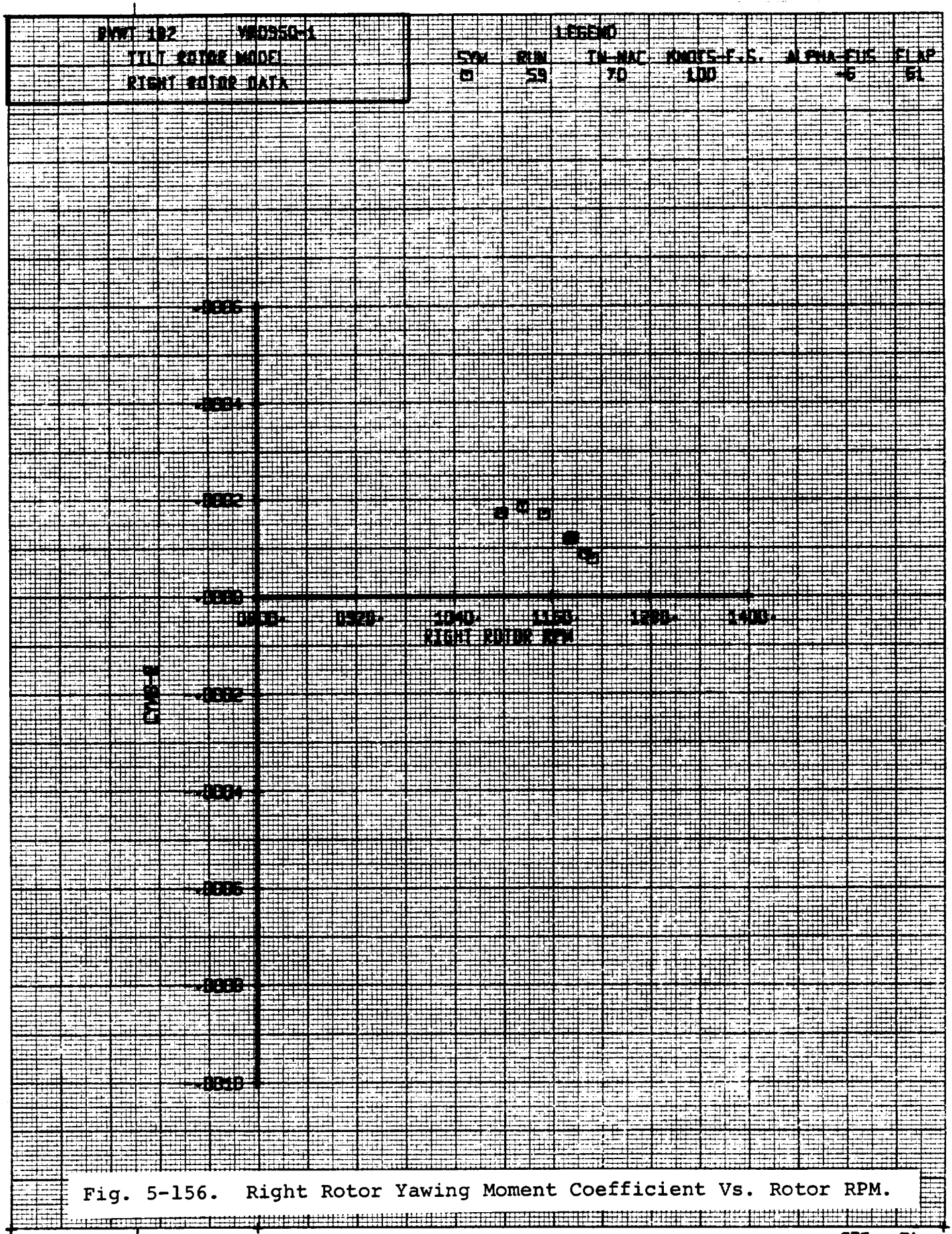


Fig. 5-156. Right Rotor Yawing Moment Coefficient Vs. Rotor RPM.

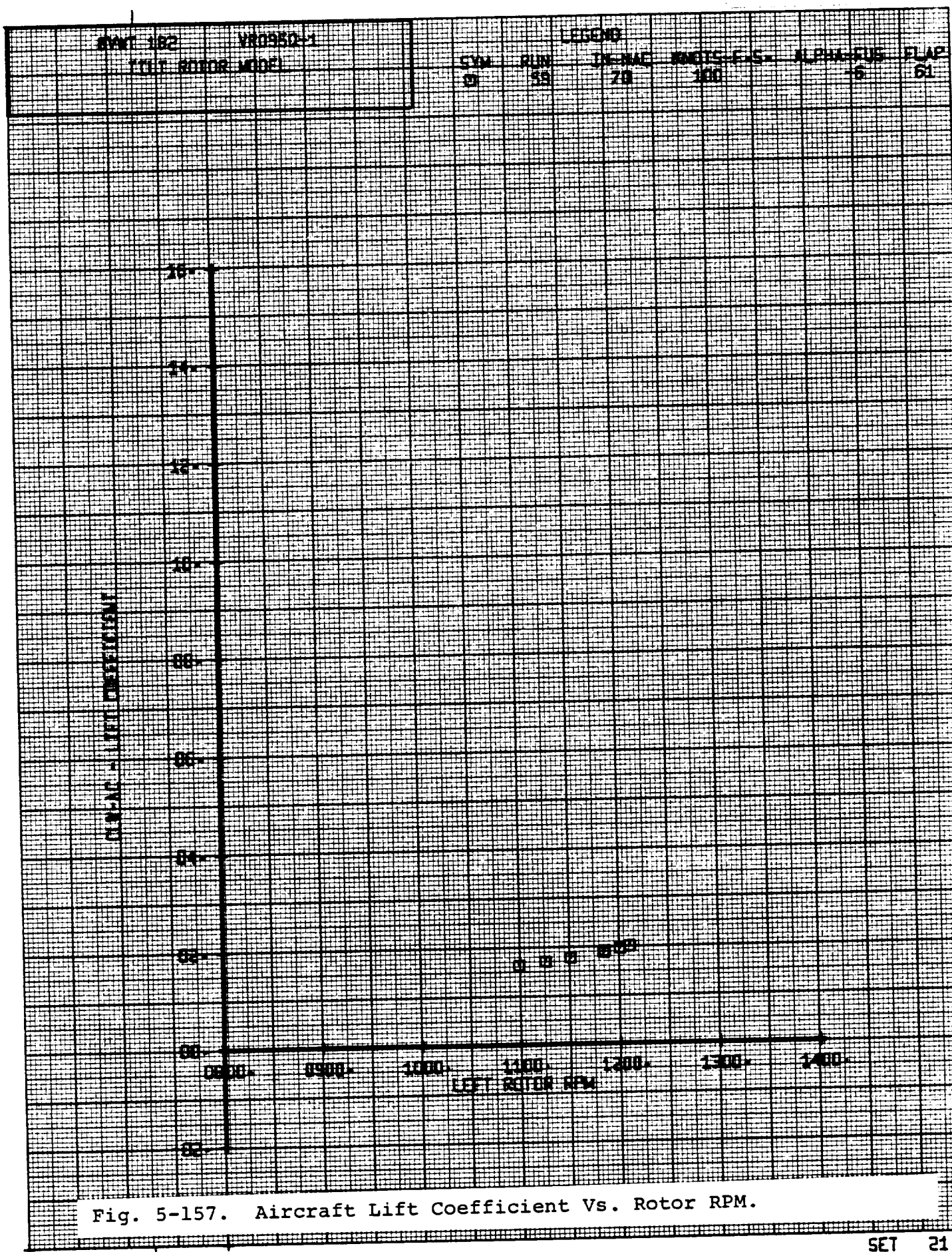
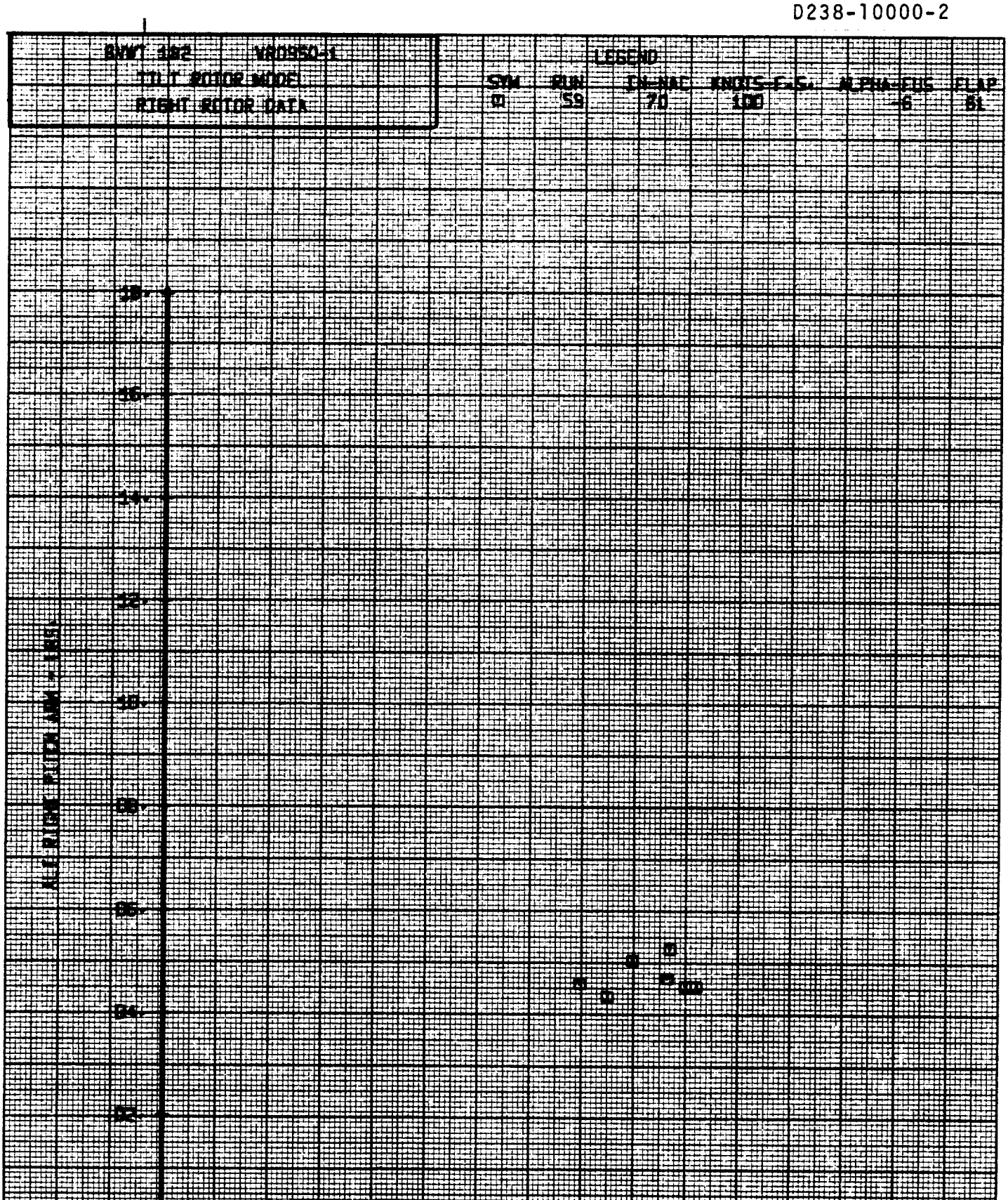


Fig. 5-157. Aircraft Lift Coefficient Vs. Rotor RPM.

SET 21
BWT 182

D238-10000-2


BWT 192 VROYSO-1
TILT ROTOR MODEL
RIGHT ROTOR DATA
LEGEND
SYM RUN IN-NAC KNOTS-E.S. ALPHA-FUS FLAP
m S9 70 100 -6 81
18.
16.
14.
12.
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ROTOR PITCH, DEG

$I_N = 70^o$ $V_{FS} = 140$ KTS.

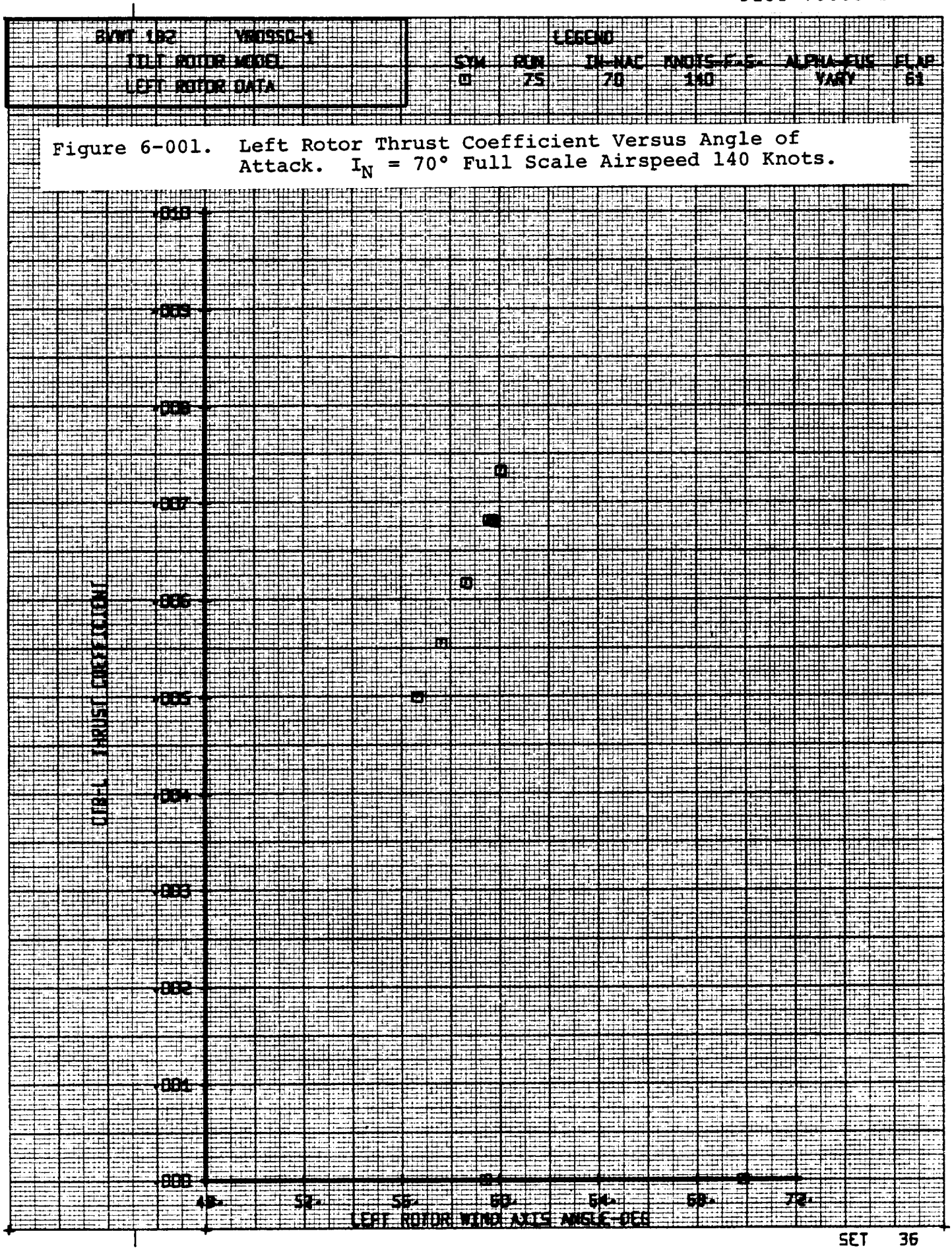


Figure 6-001. Left Rotor Thrust Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

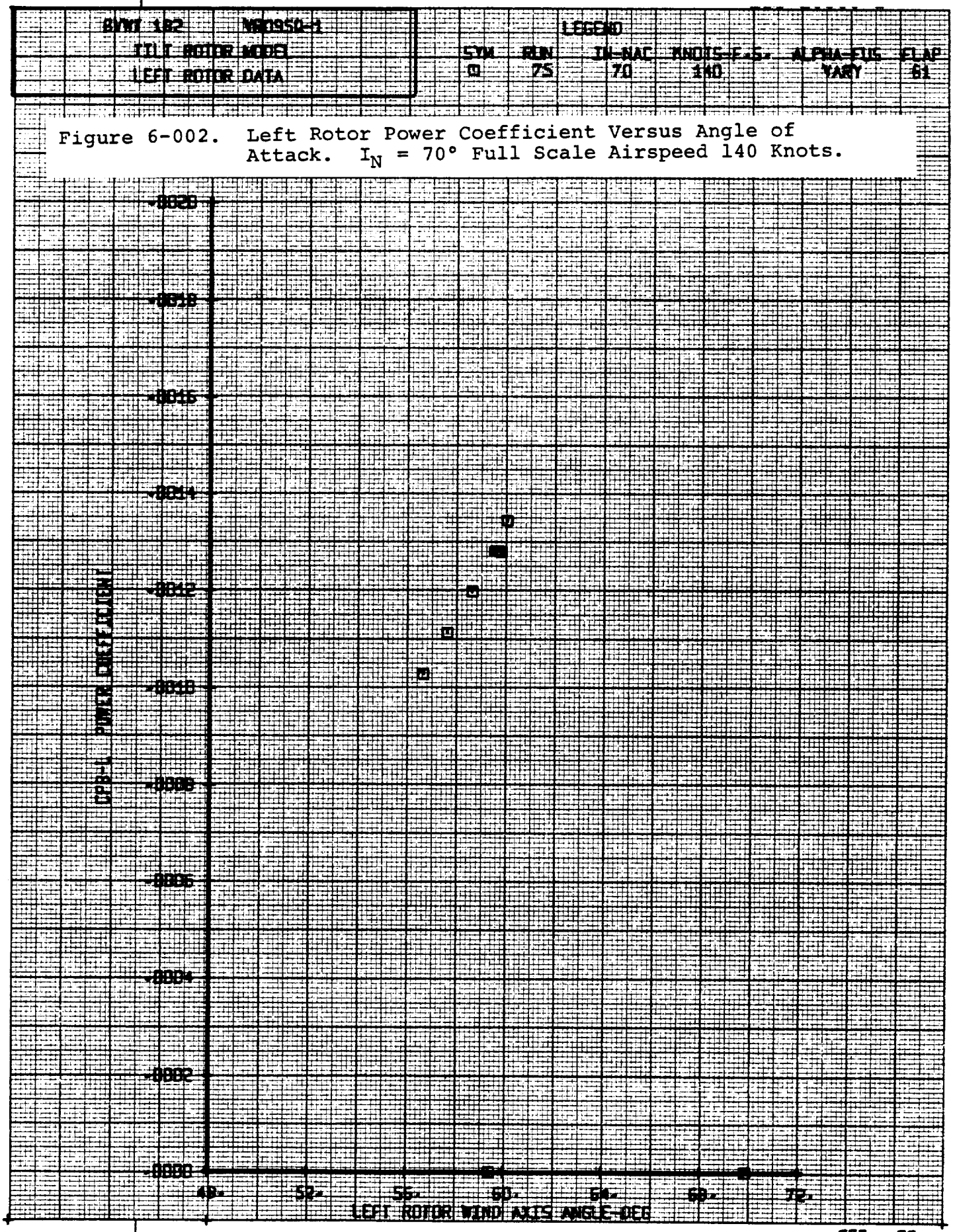


Figure 6-002. Left Rotor Power Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

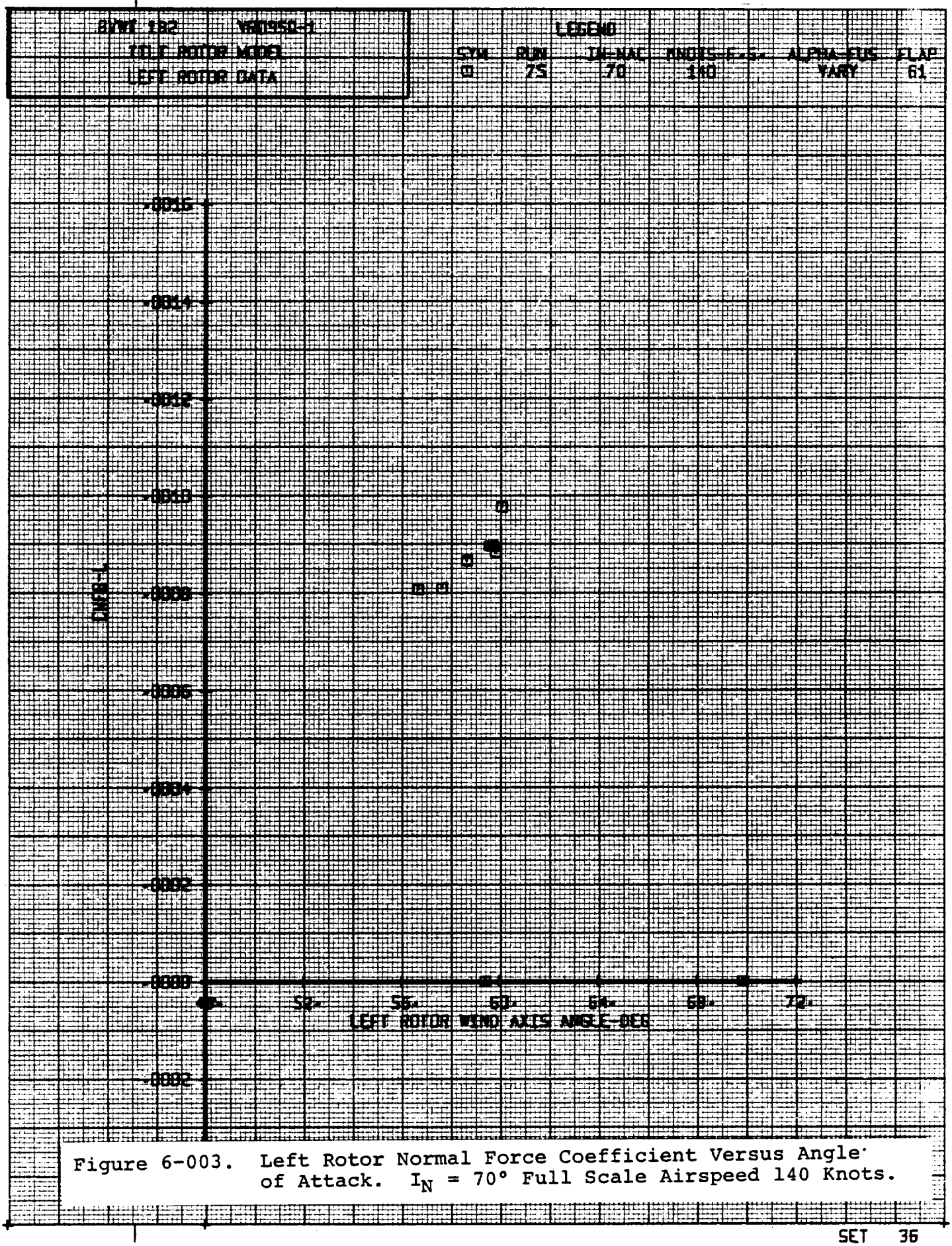


Figure 6-003. Left Rotor Normal Force Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

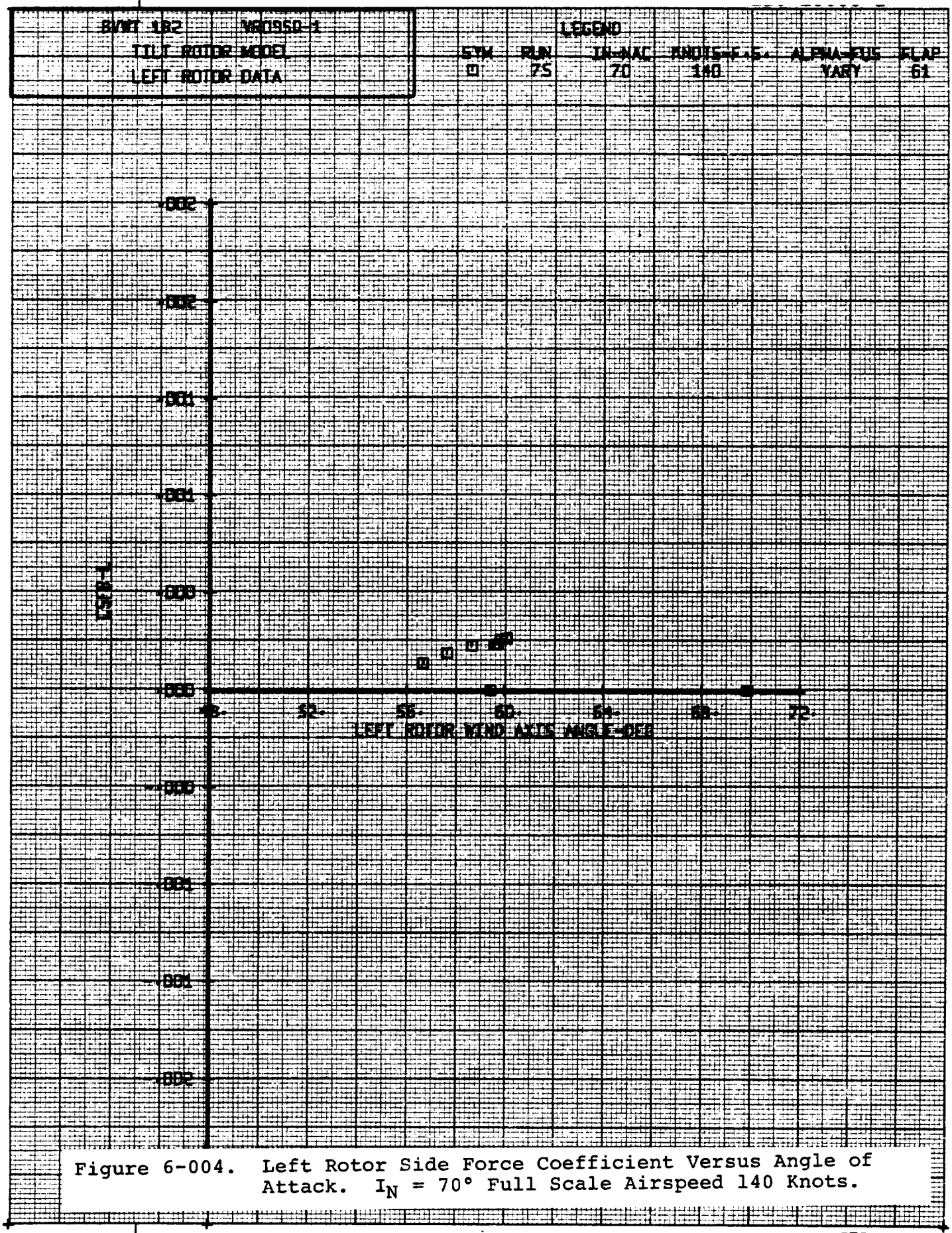


Figure 6-004. Left Rotor Side Force Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

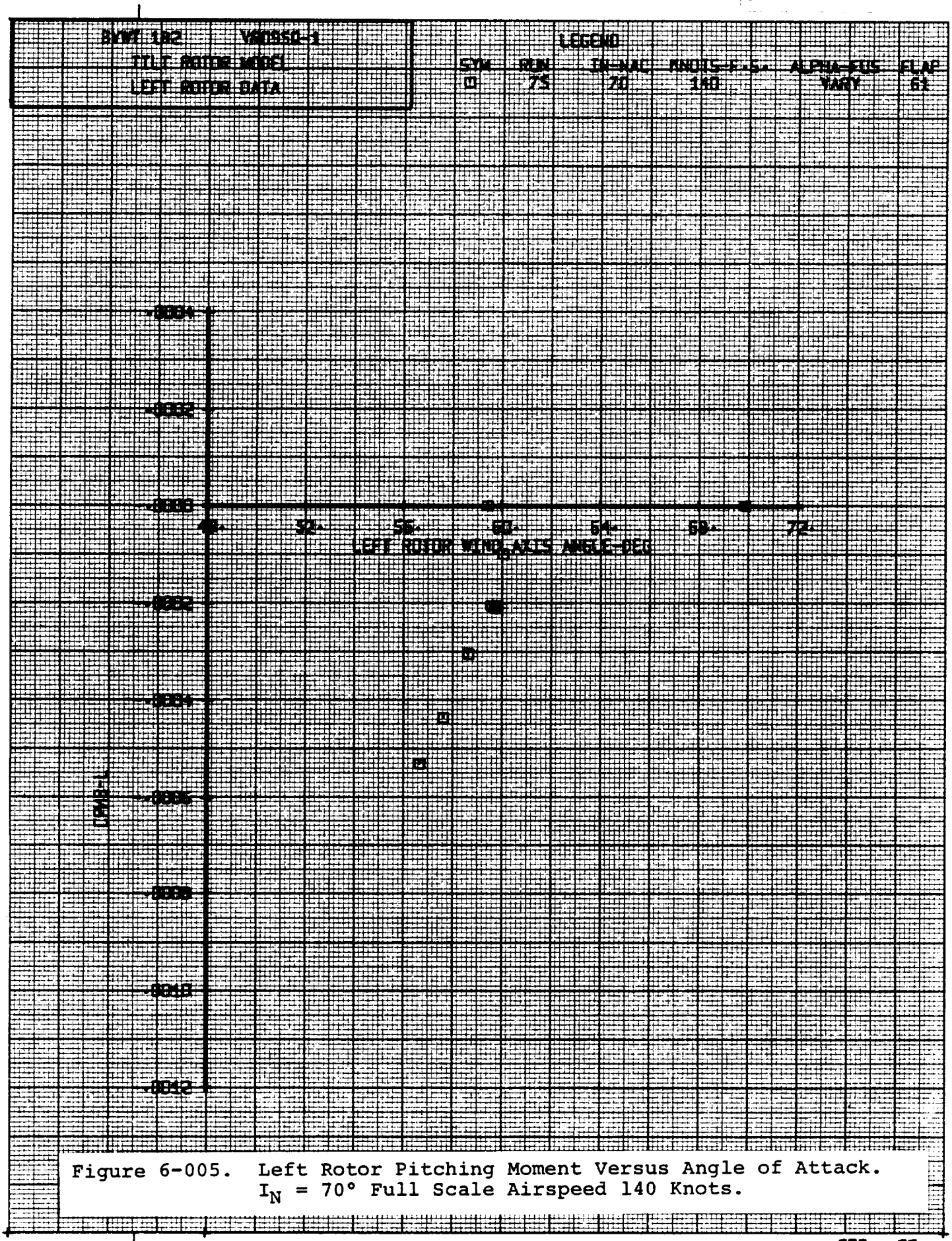


Figure 6-005. Left Rotor Pitching Moment Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

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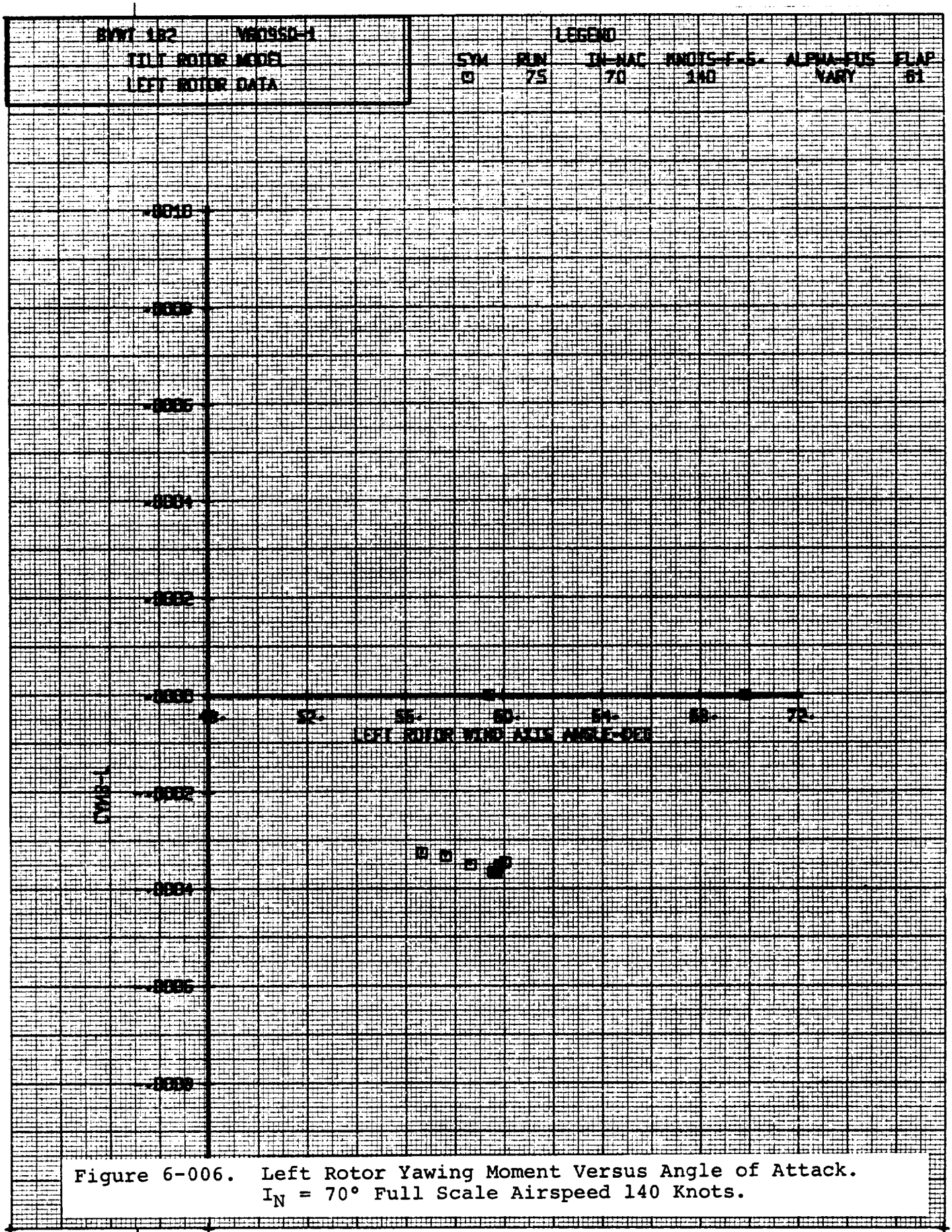


Figure 6-006. Left Rotor Yawing Moment Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

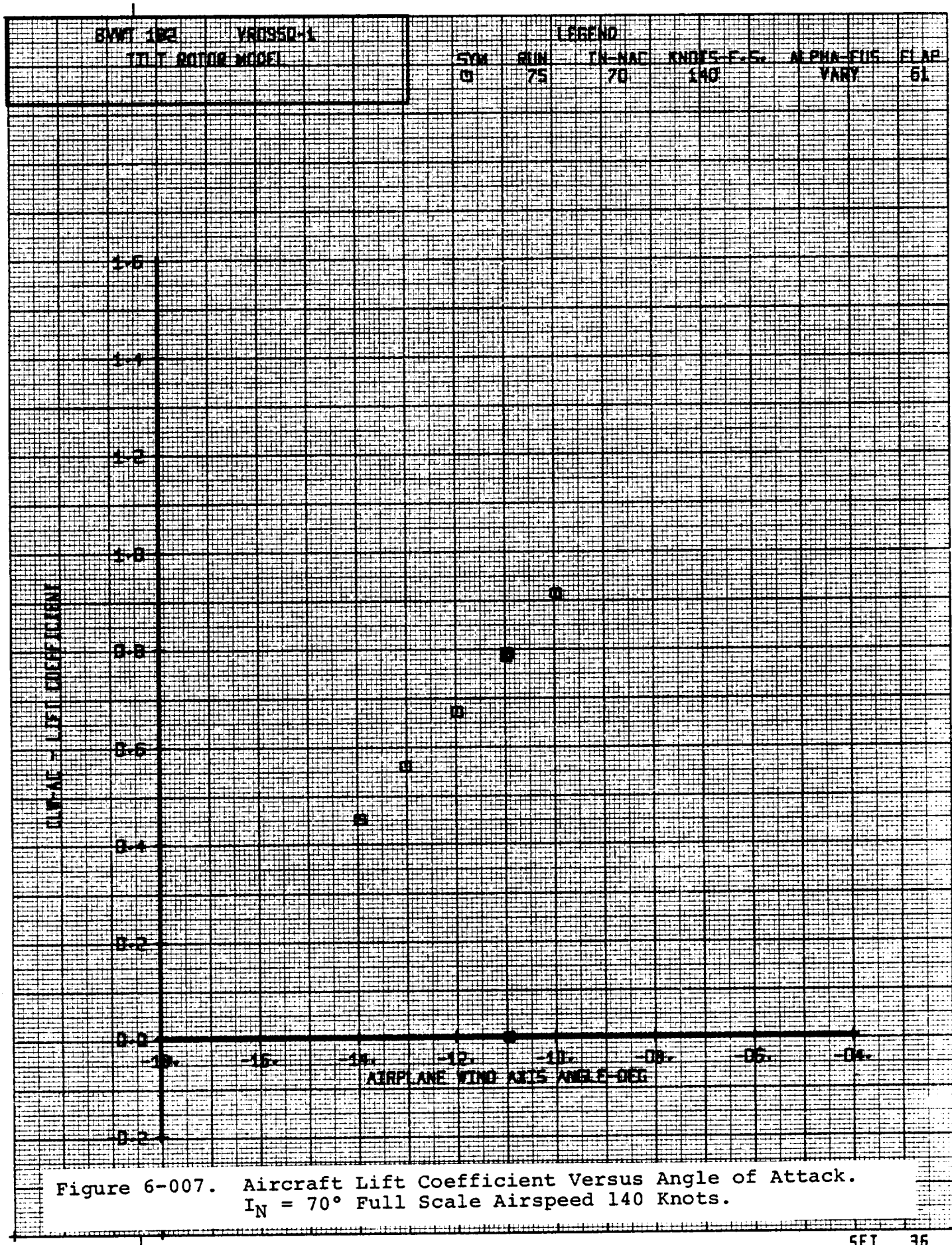


Figure 6-007. Aircraft Lift Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

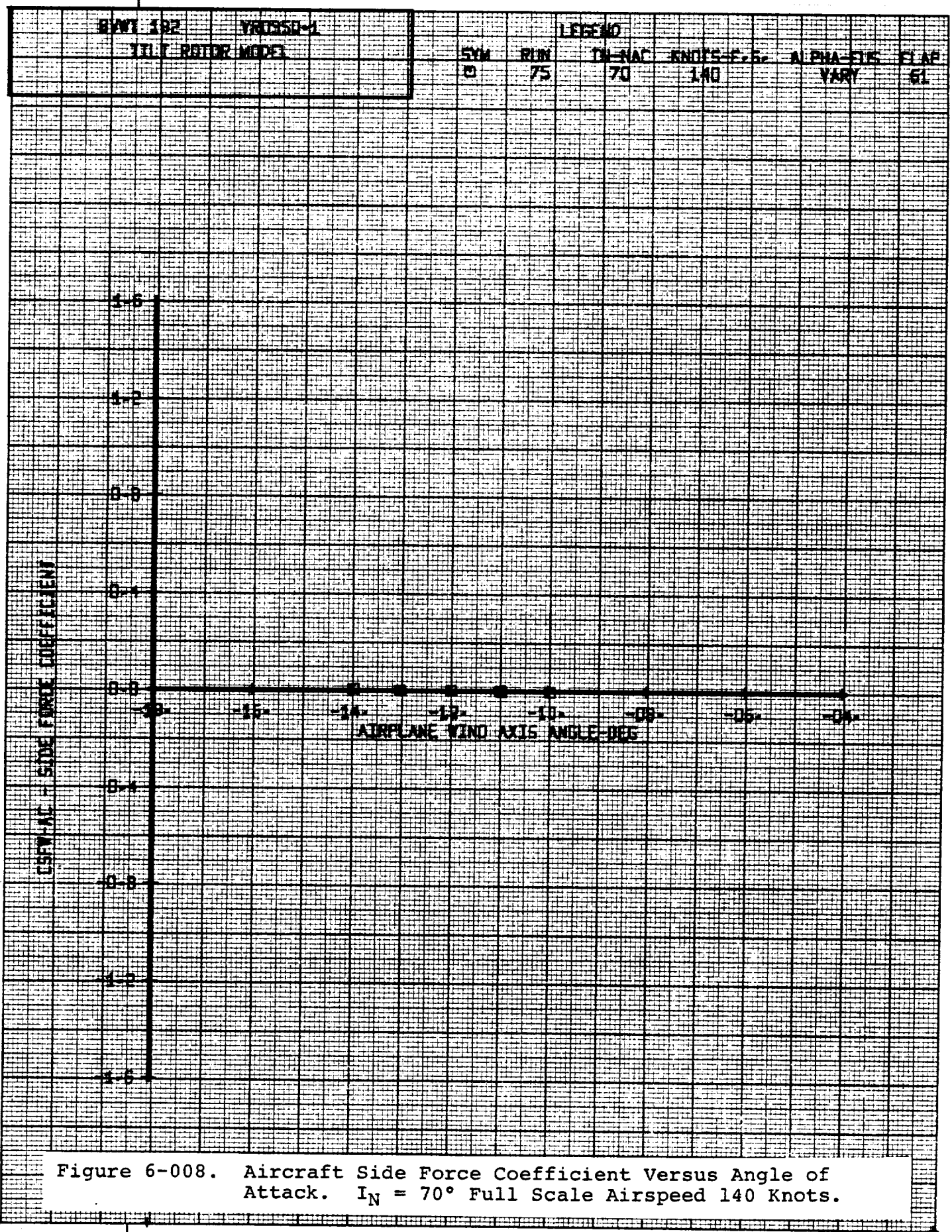


Figure 6-008. Aircraft Side Force Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

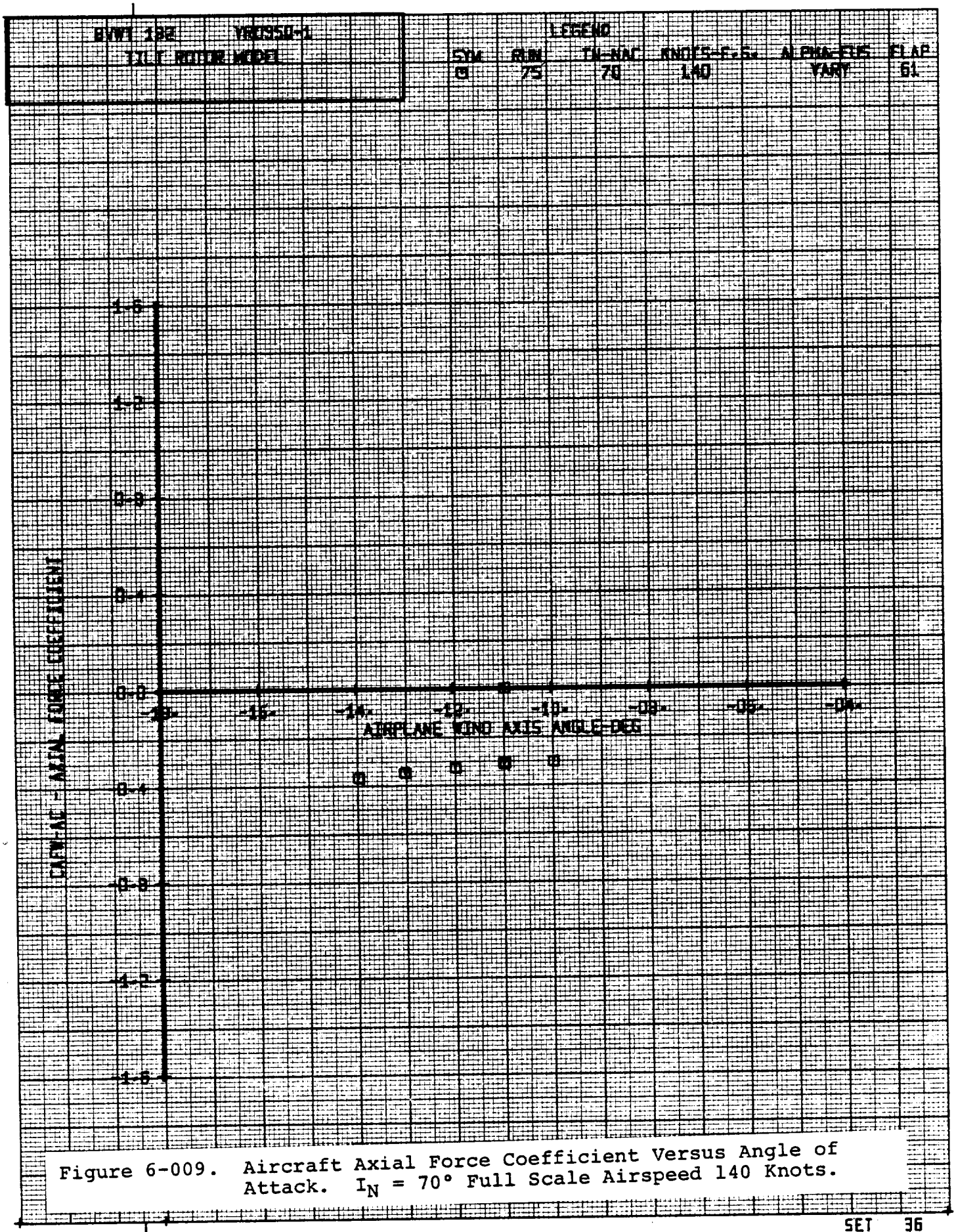


Figure 6-009. Aircraft Axial Force Coefficient Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

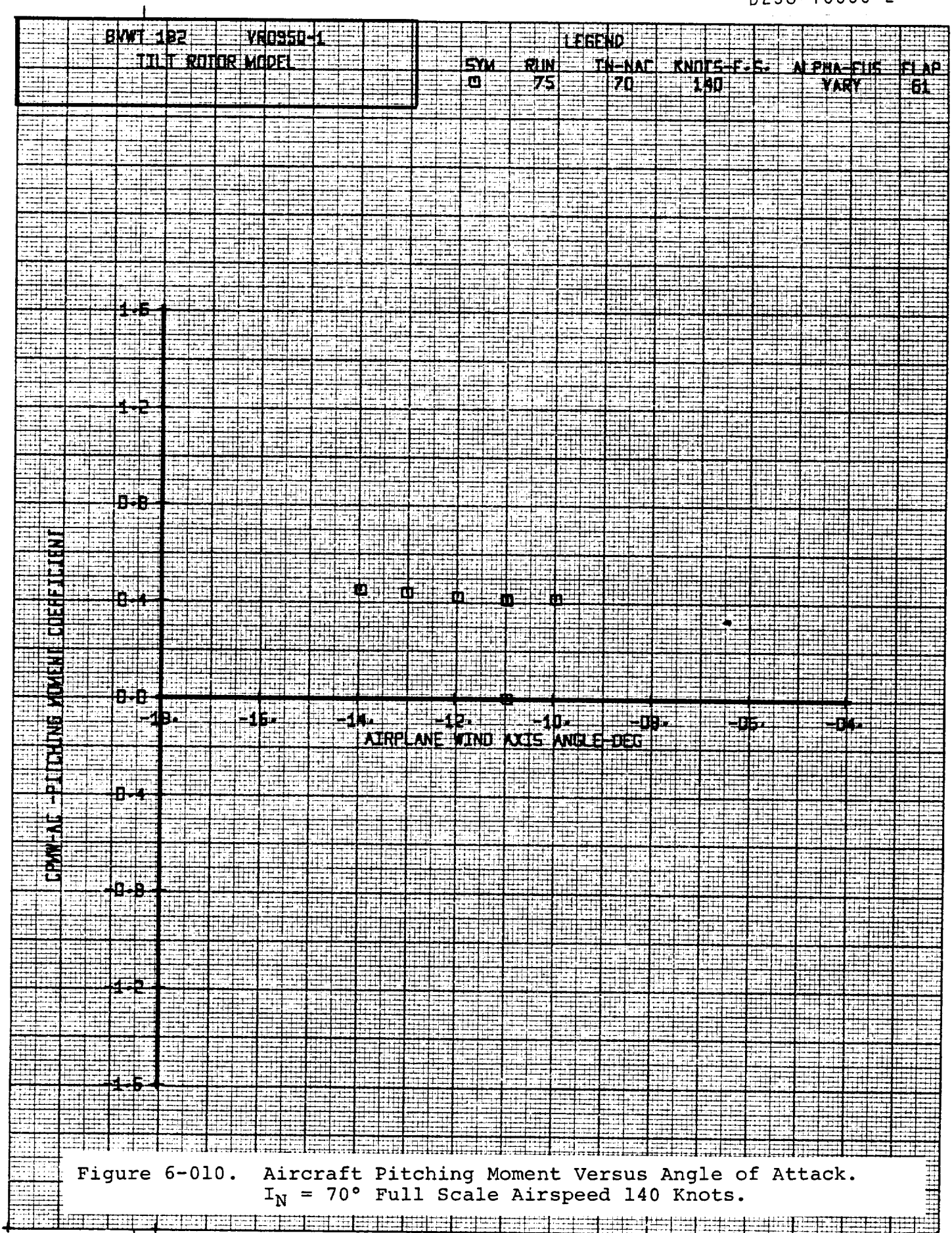


Figure 6-010. Aircraft Pitching Moment Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

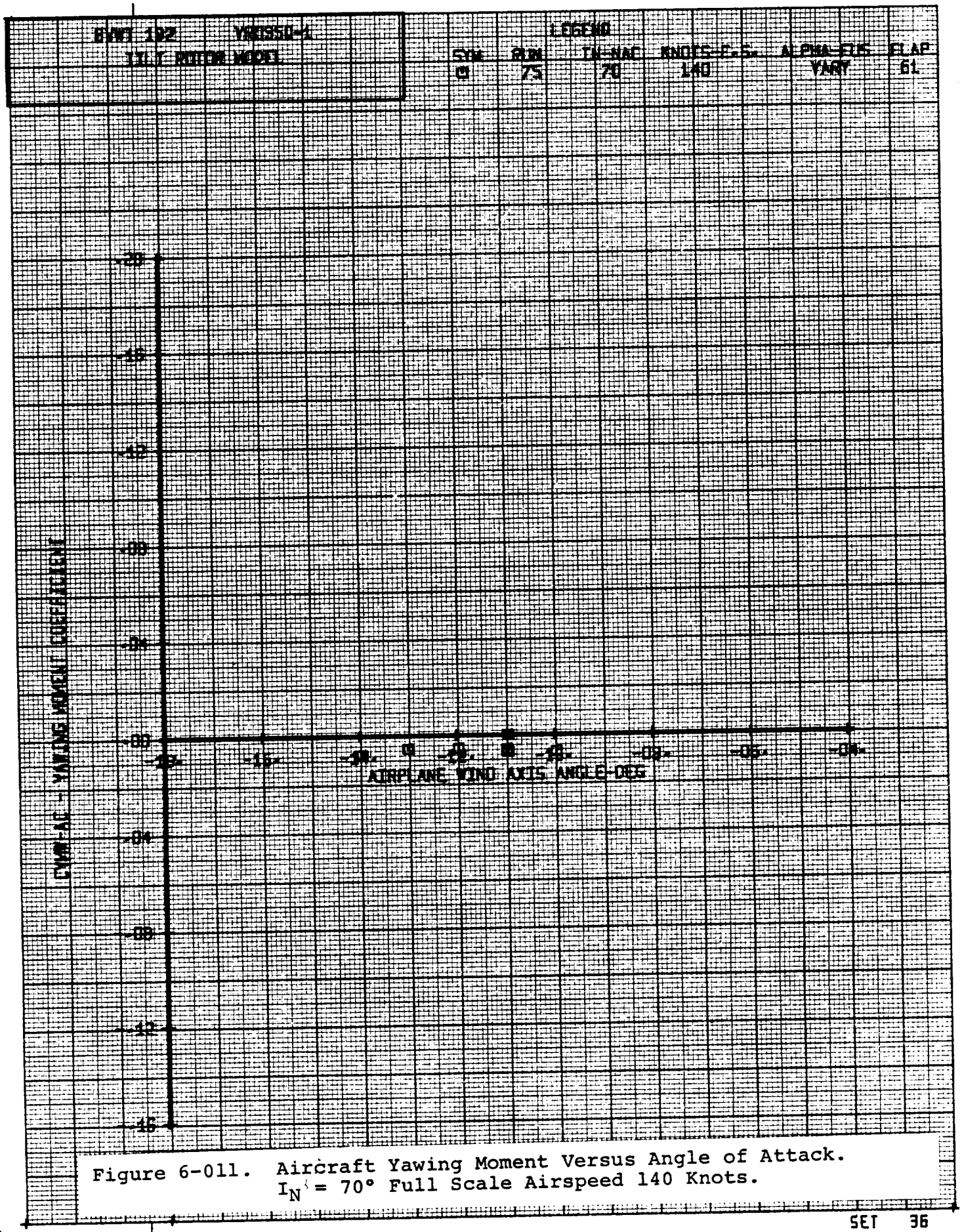


Figure 6-011. Aircraft Yawing Moment Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

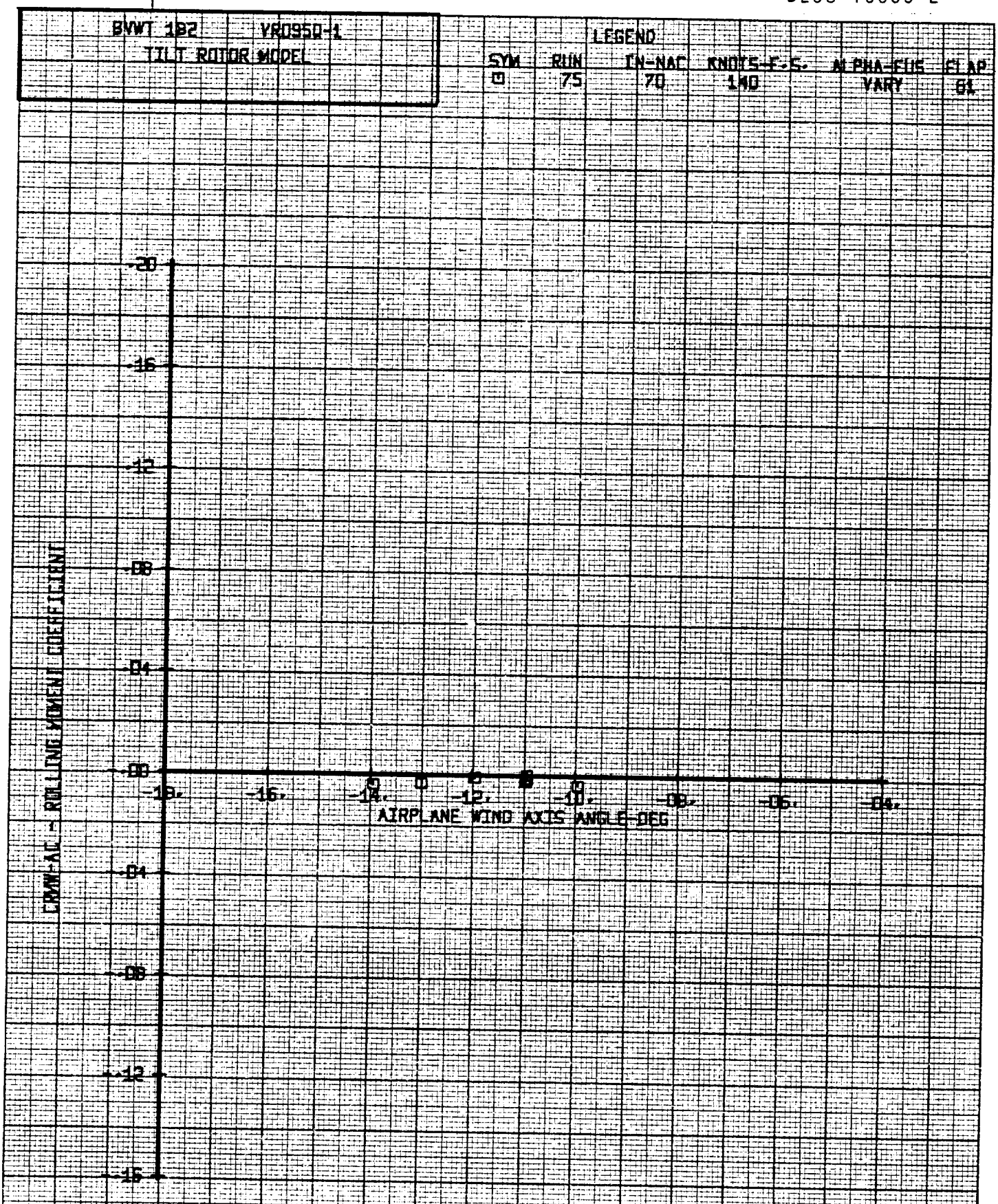


Figure 6-012. Aircraft Rolling Moment Versus Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

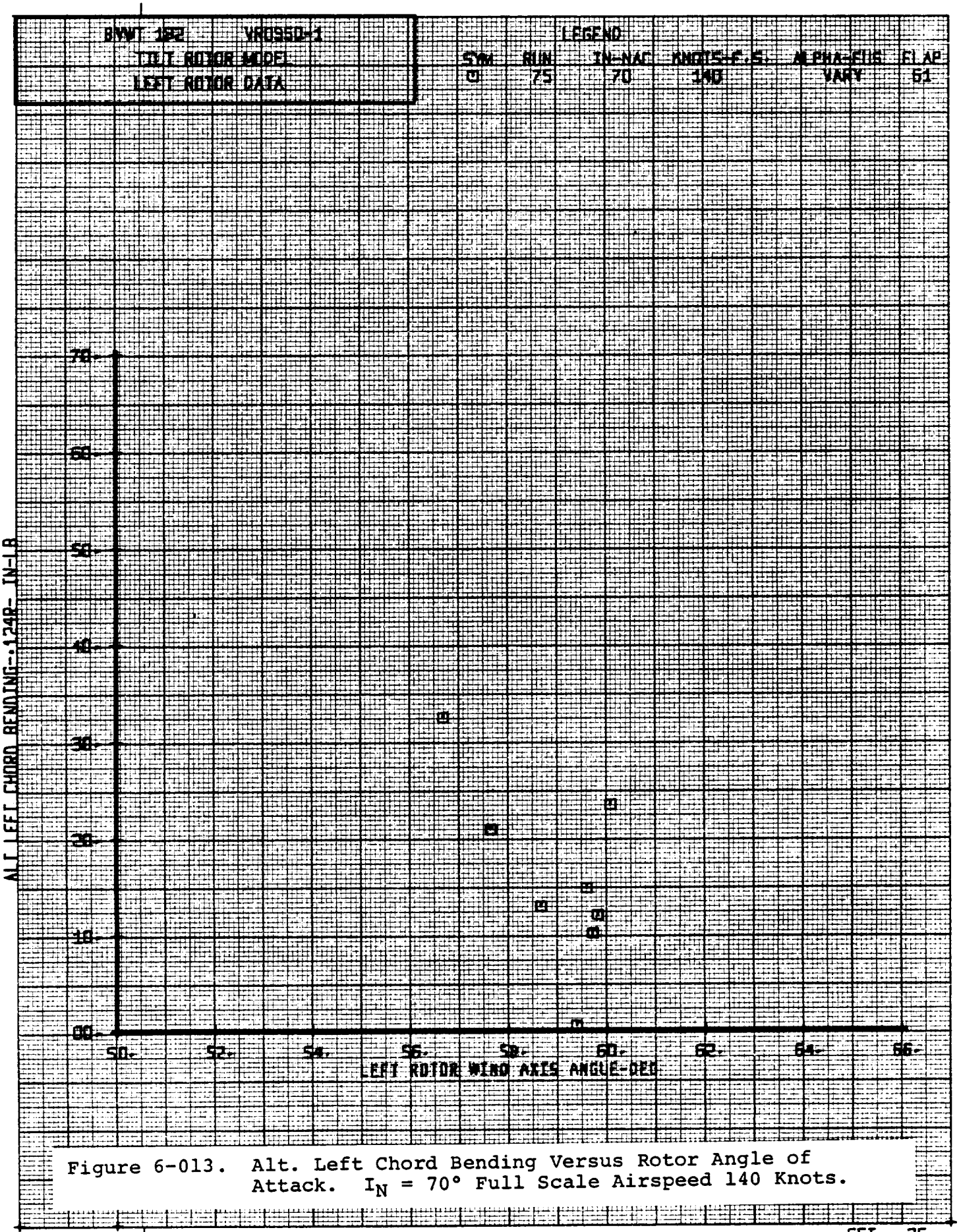


Figure 6-013. Alt. Left Chord Bending Versus Rotor Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

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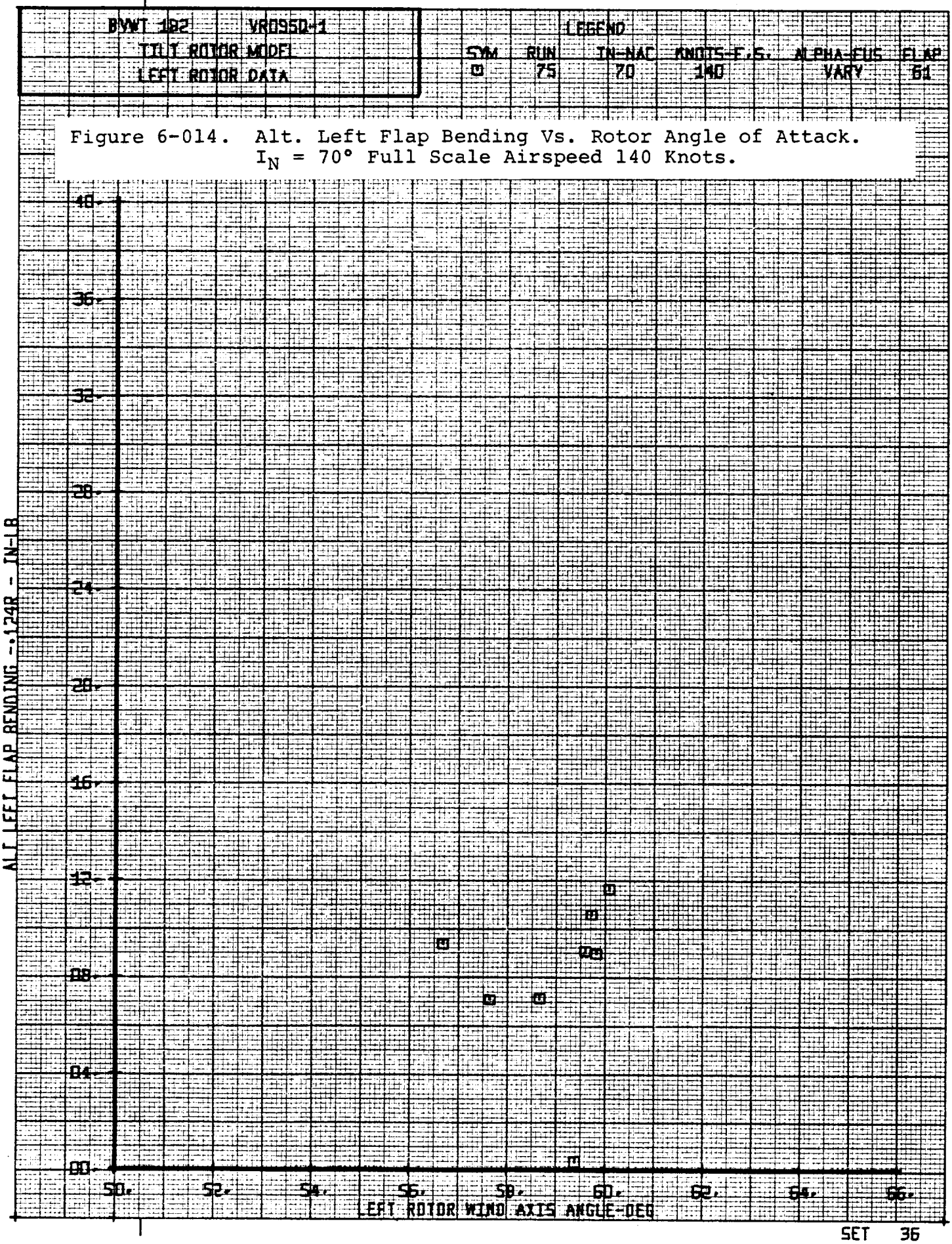


Figure 6-014. Alt. Left Flap Bending Vs. Rotor Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

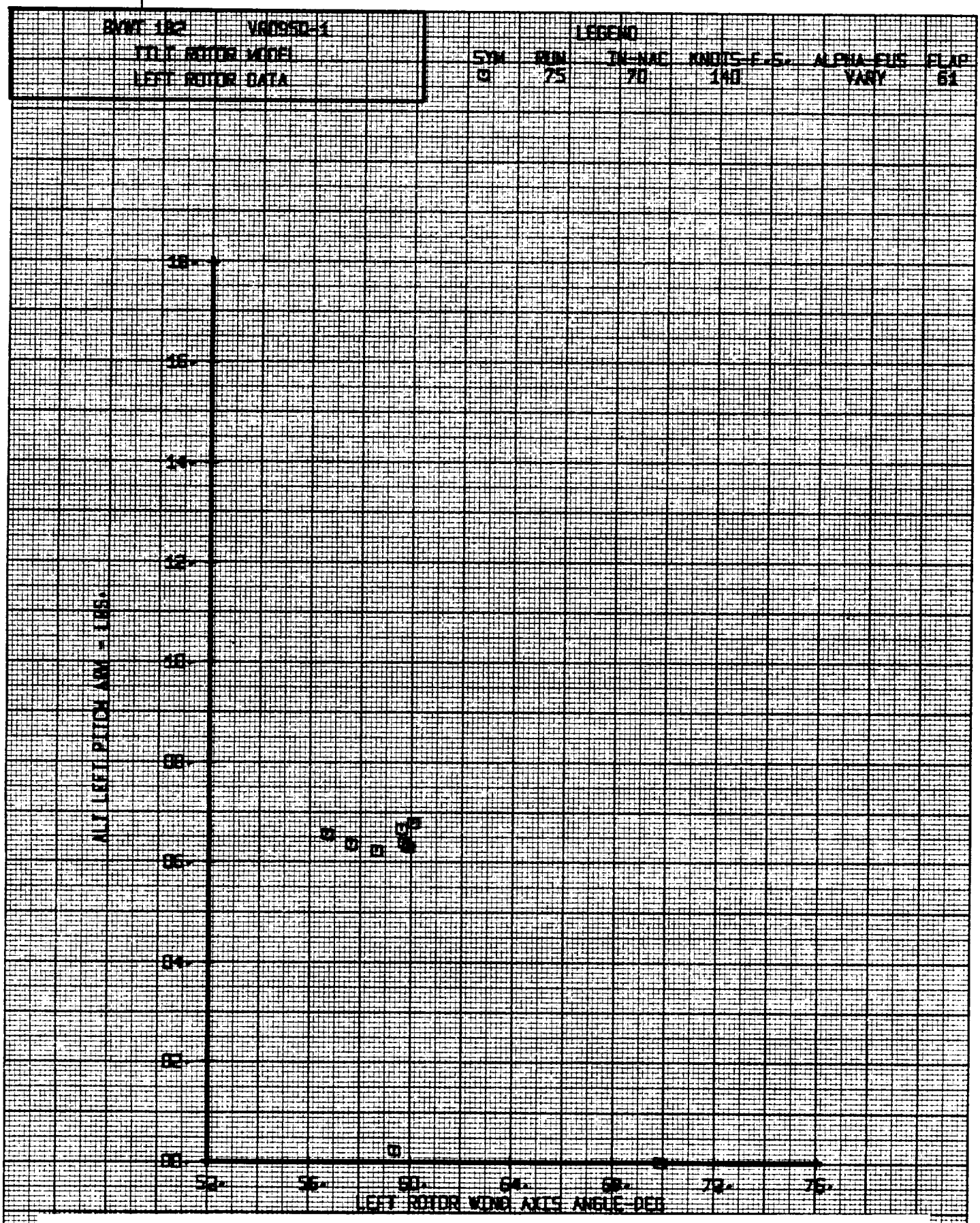


Figure 6-015. Alt. Left Pitch Link Load Versus Rotor Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

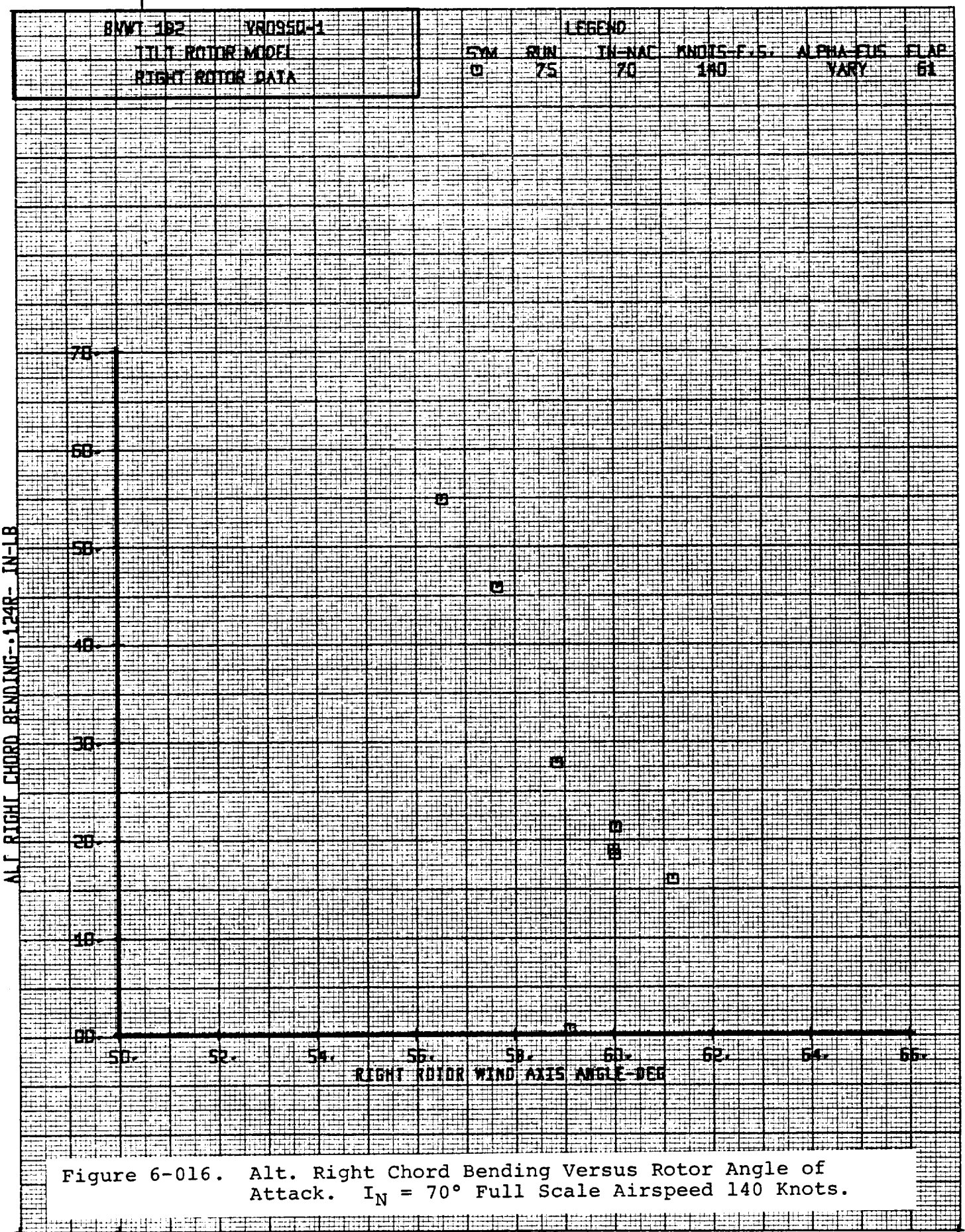


Figure 6-016. Alt. Right Chord Bending Versus Rotor Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

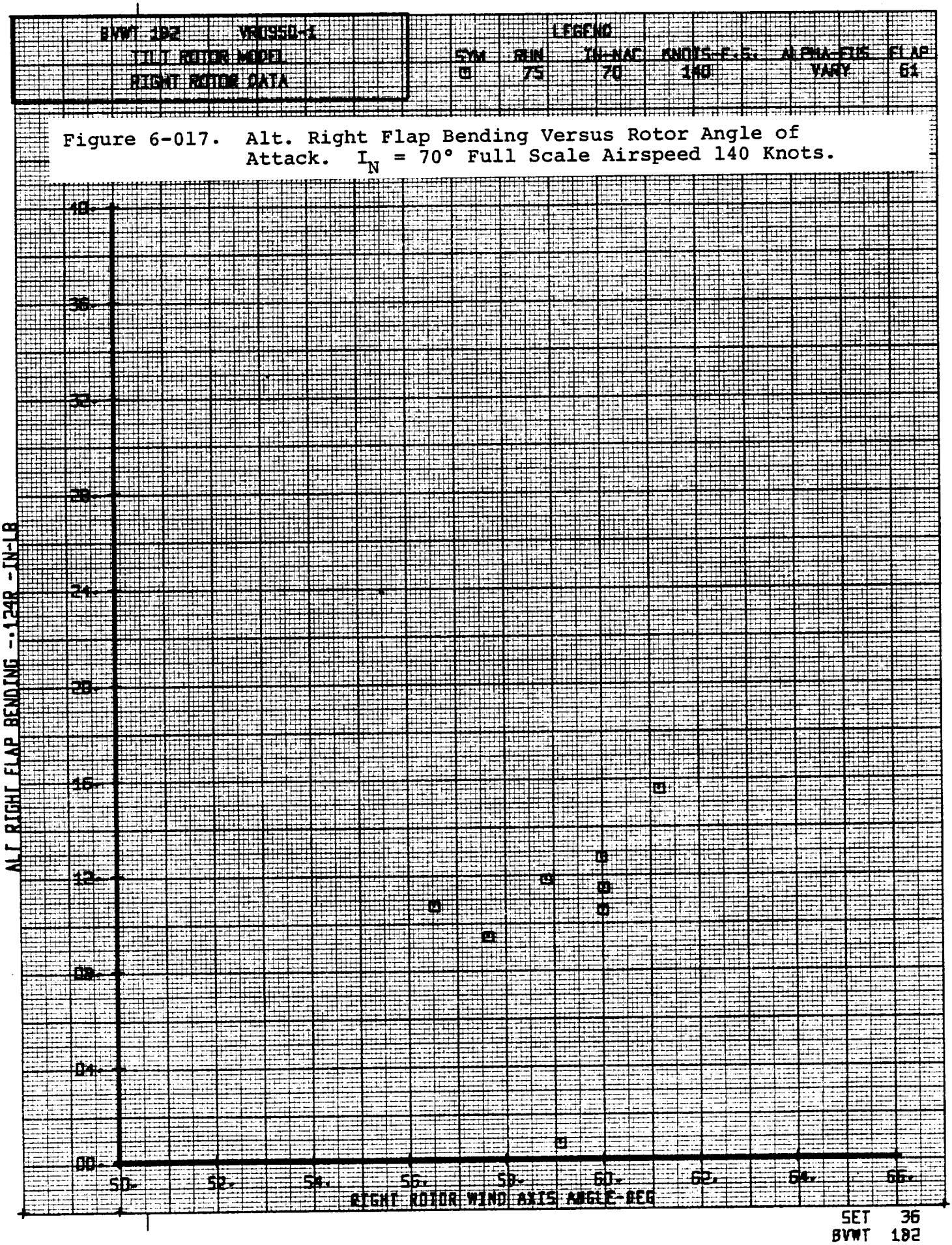


Figure 6-017. Alt. Right Flap Bending Versus Rotor Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

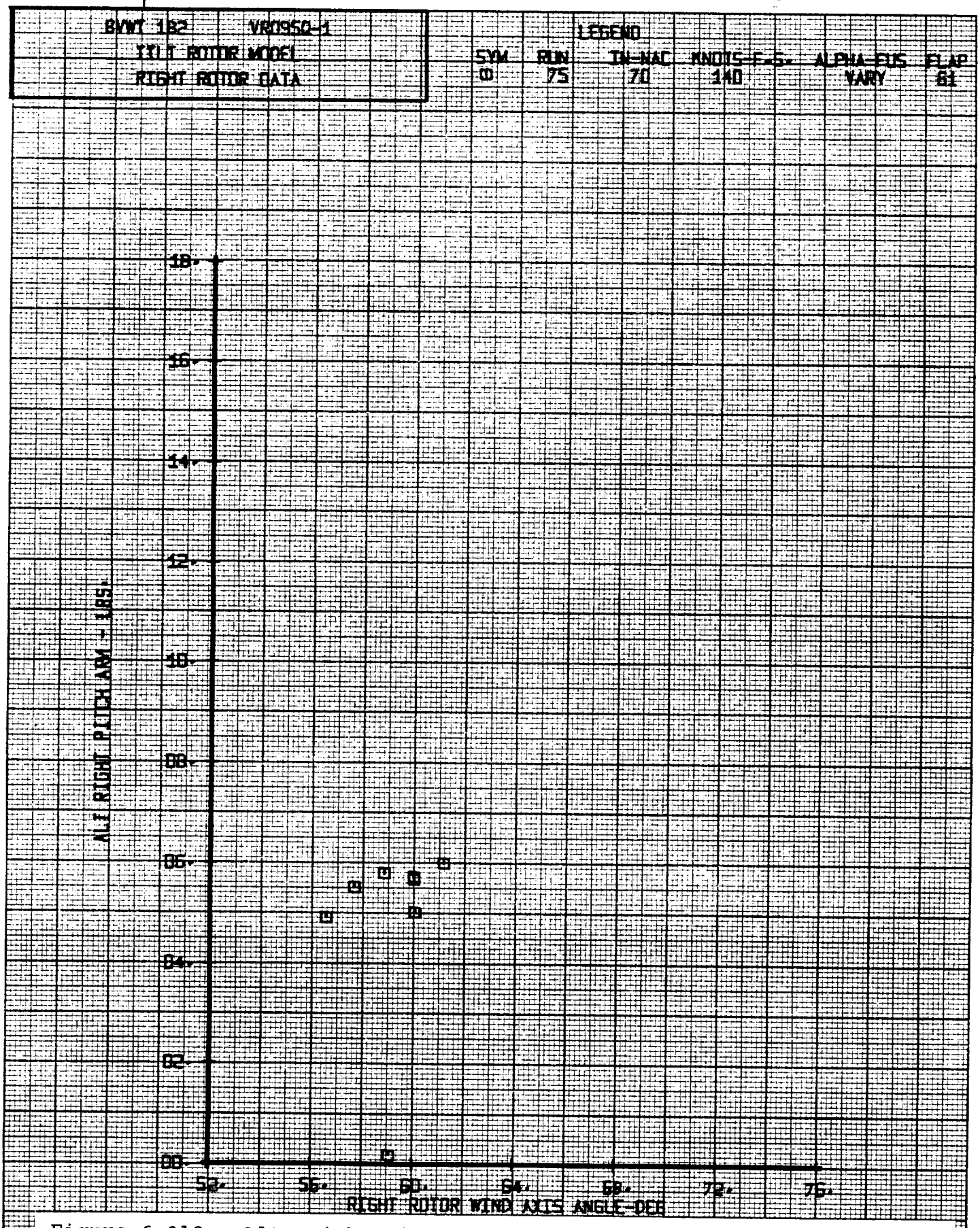


Figure 6-018. Alt. Right Pitch Link Load Versus Rotor Angle of Attack. I_N = 70° Full Scale Airspeed 140 Knots.

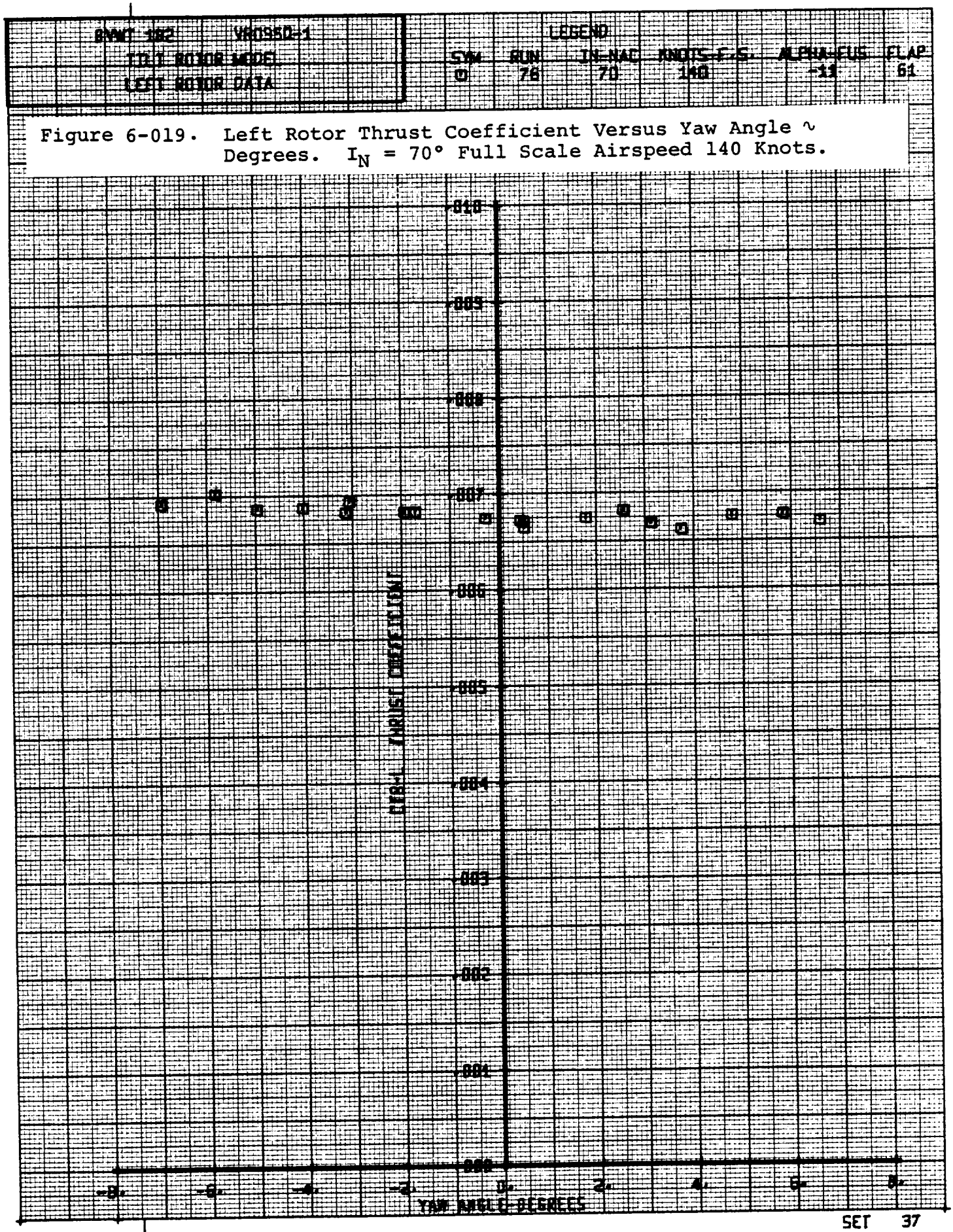


Figure 6-019. Left Rotor Thrust Coefficient Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

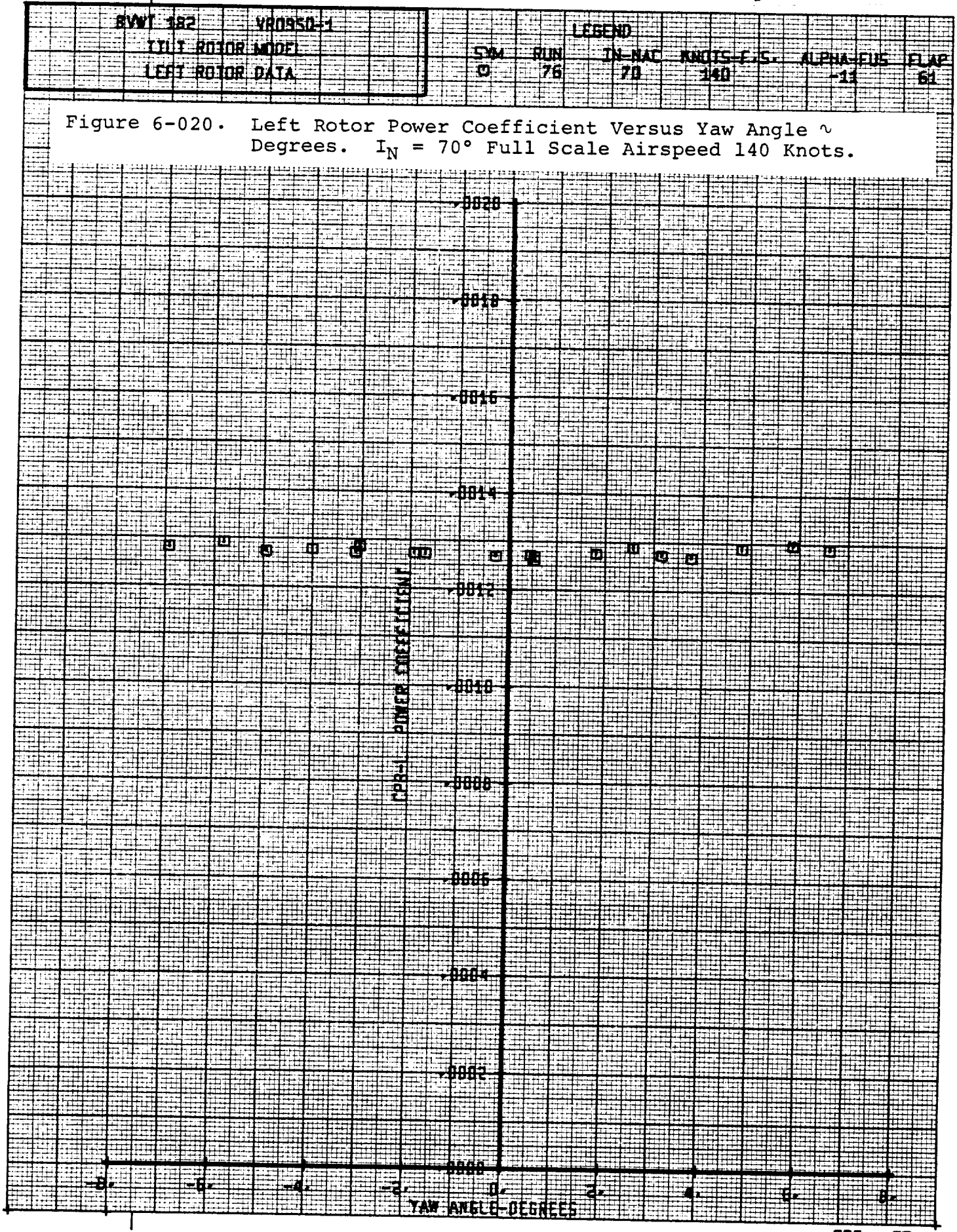


Figure 6-020. Left Rotor Power Coefficient Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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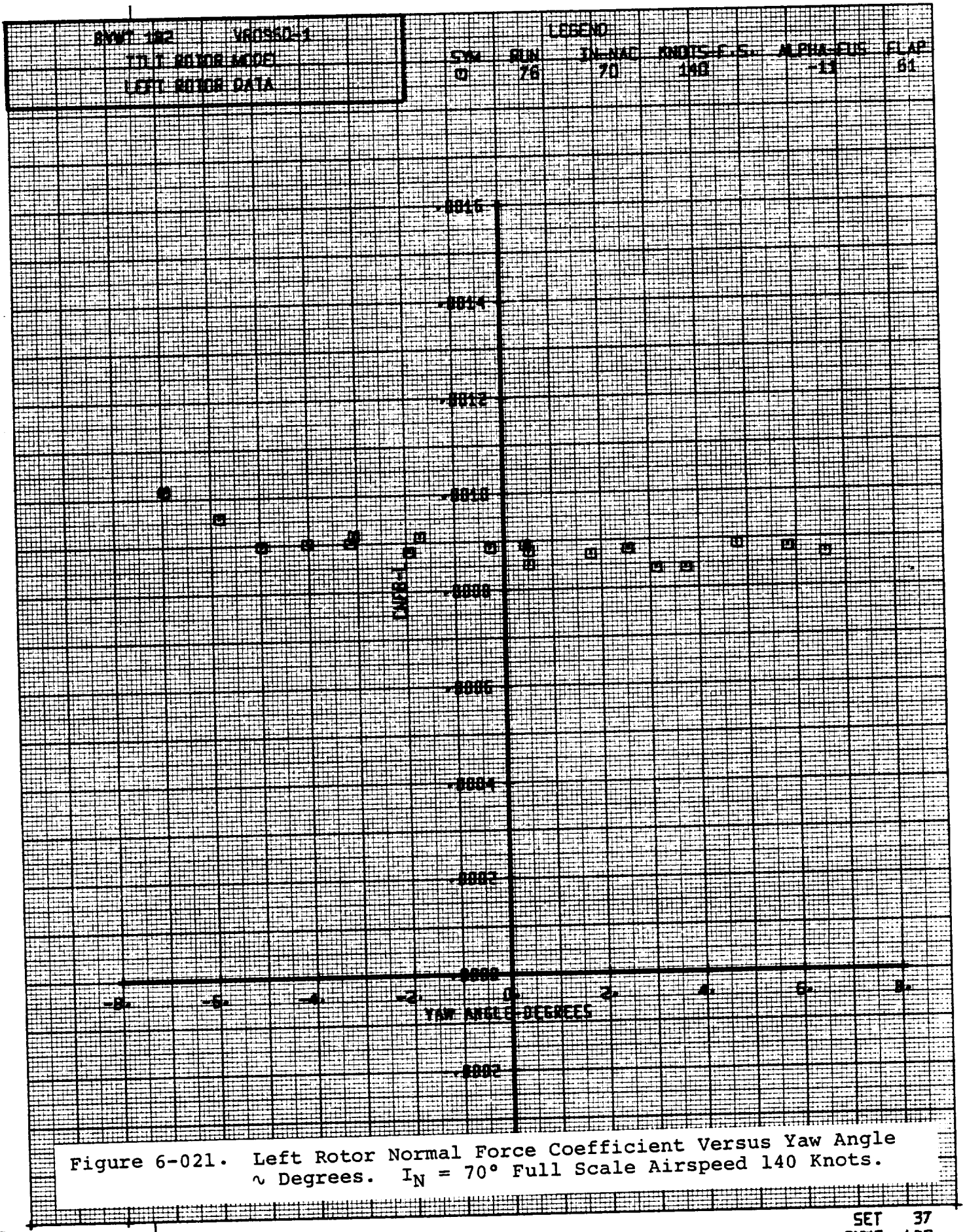


Figure 6-021. Left Rotor Normal Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

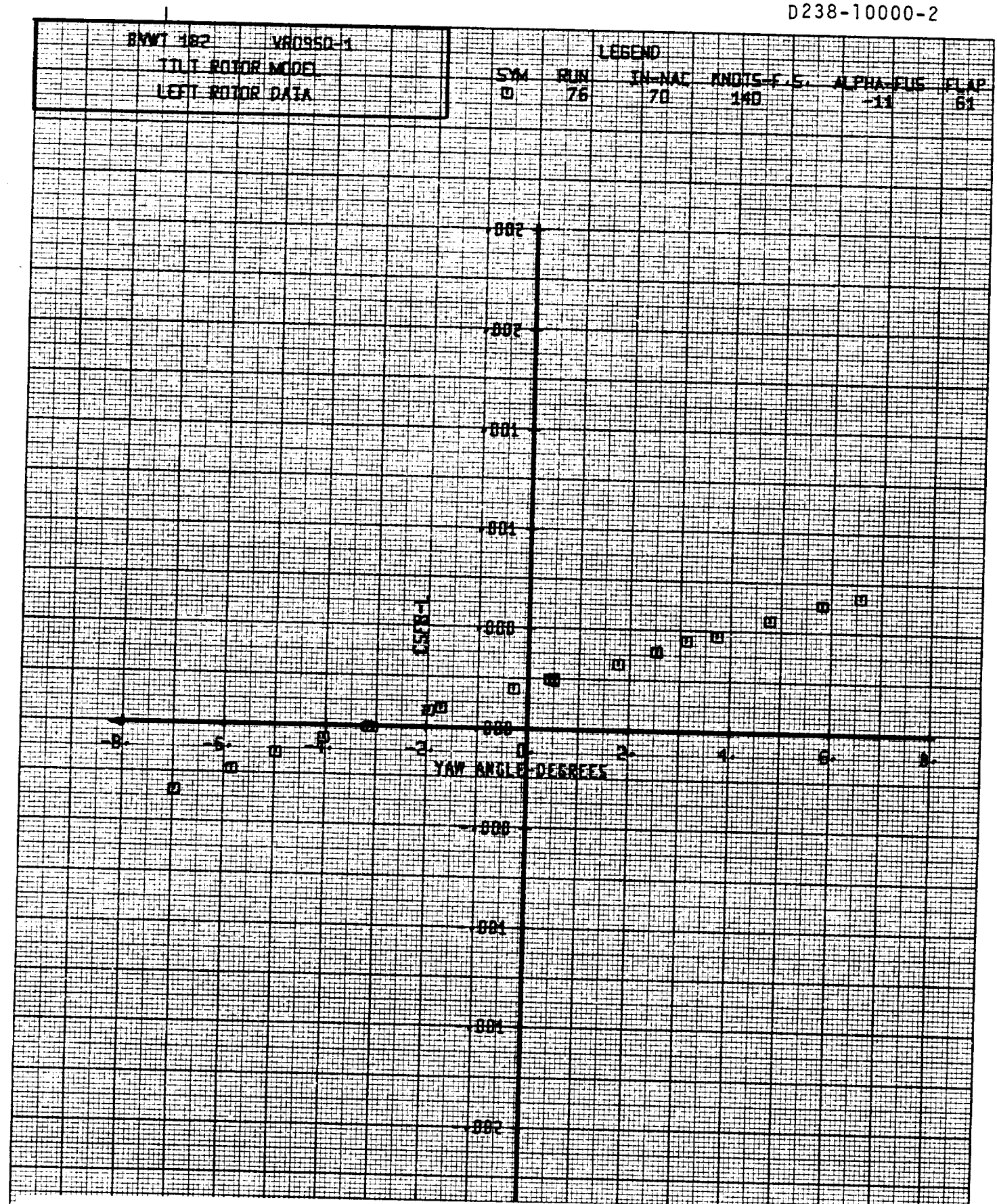


Figure 6-022. Left Rotor Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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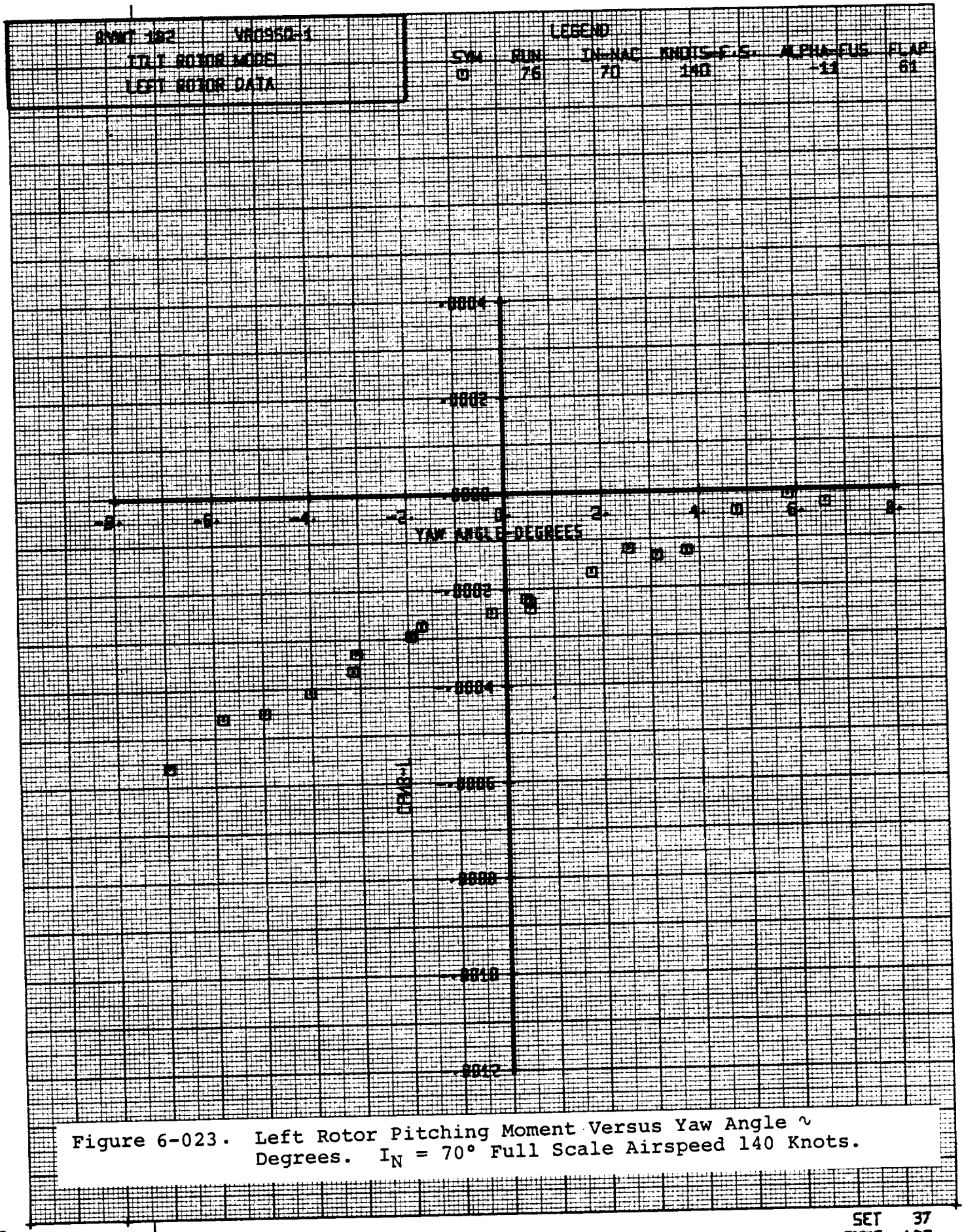


Figure 6-023. Left Rotor Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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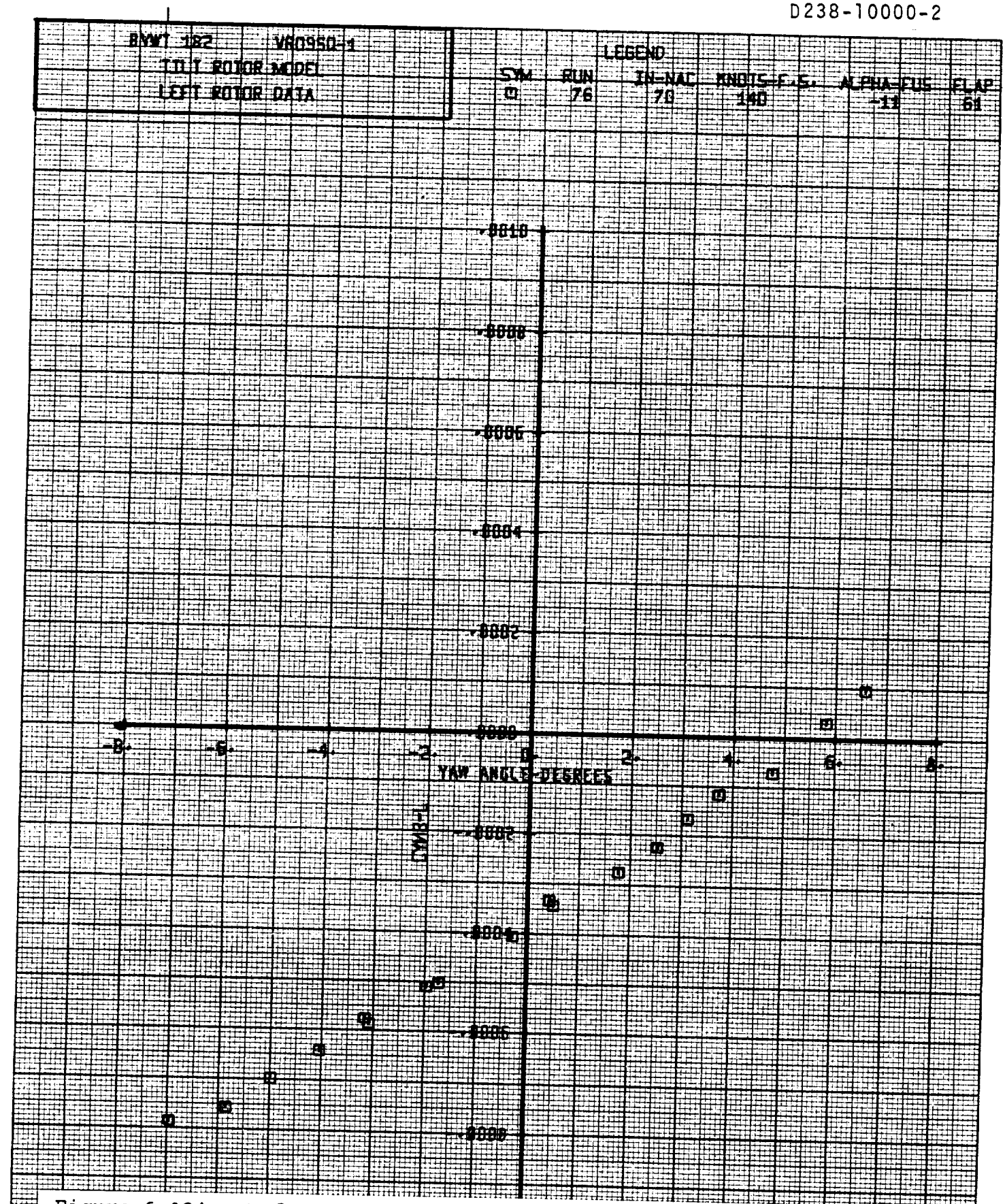


Figure 6-024. Left Rotor Yawing Moment Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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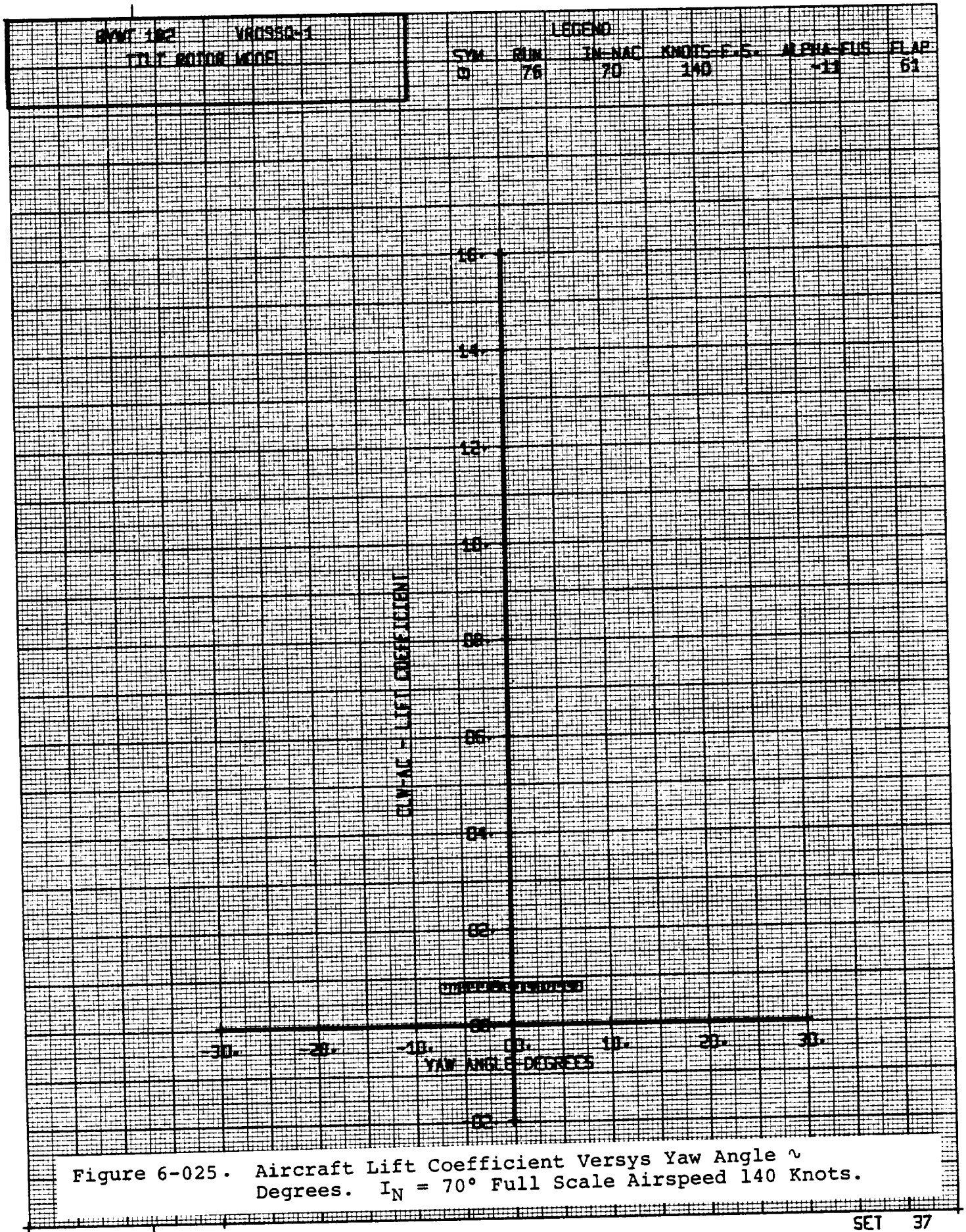


Figure 6-025. Aircraft Lift Coefficient Versys Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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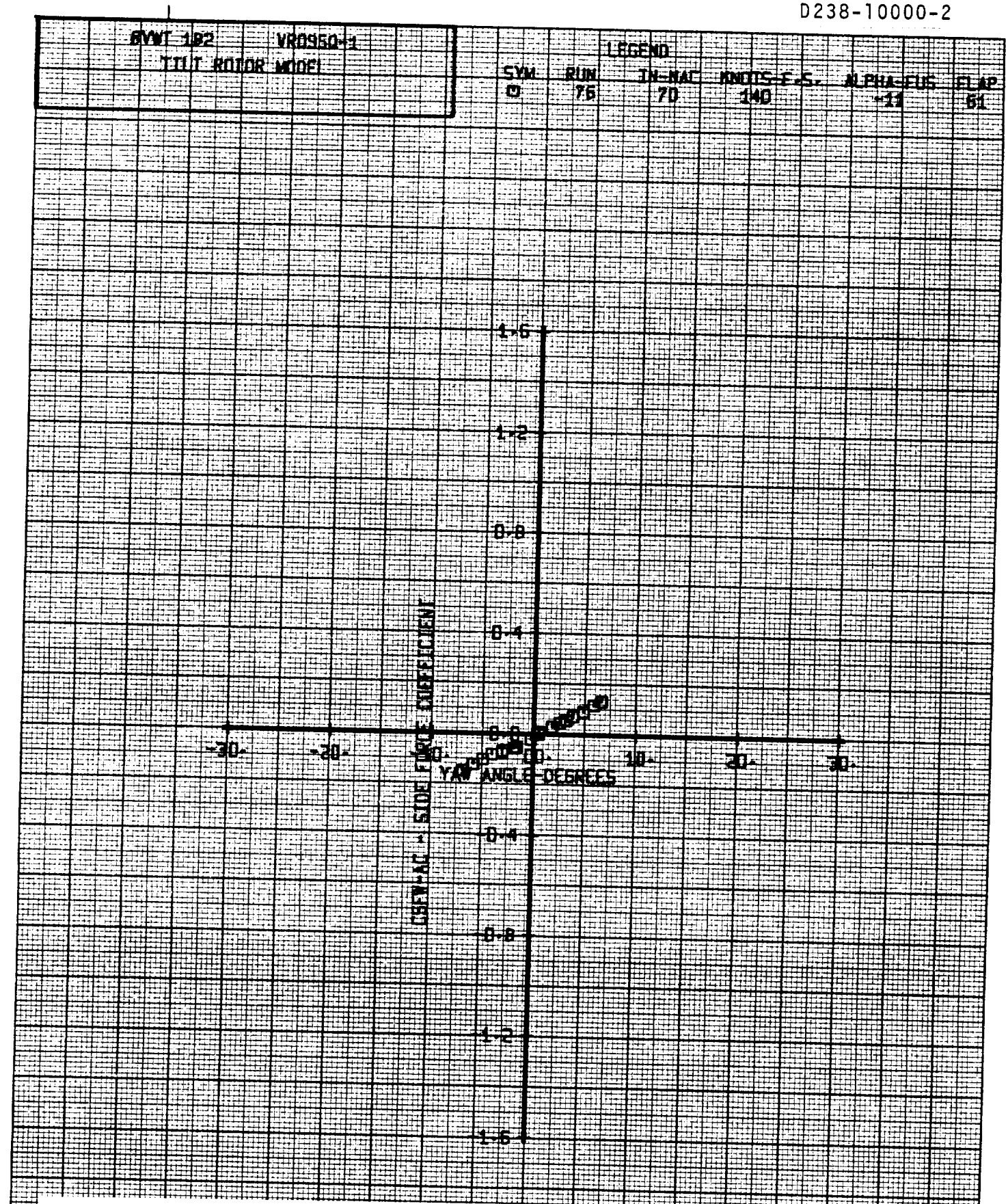


Figure 6-026. Aircraft Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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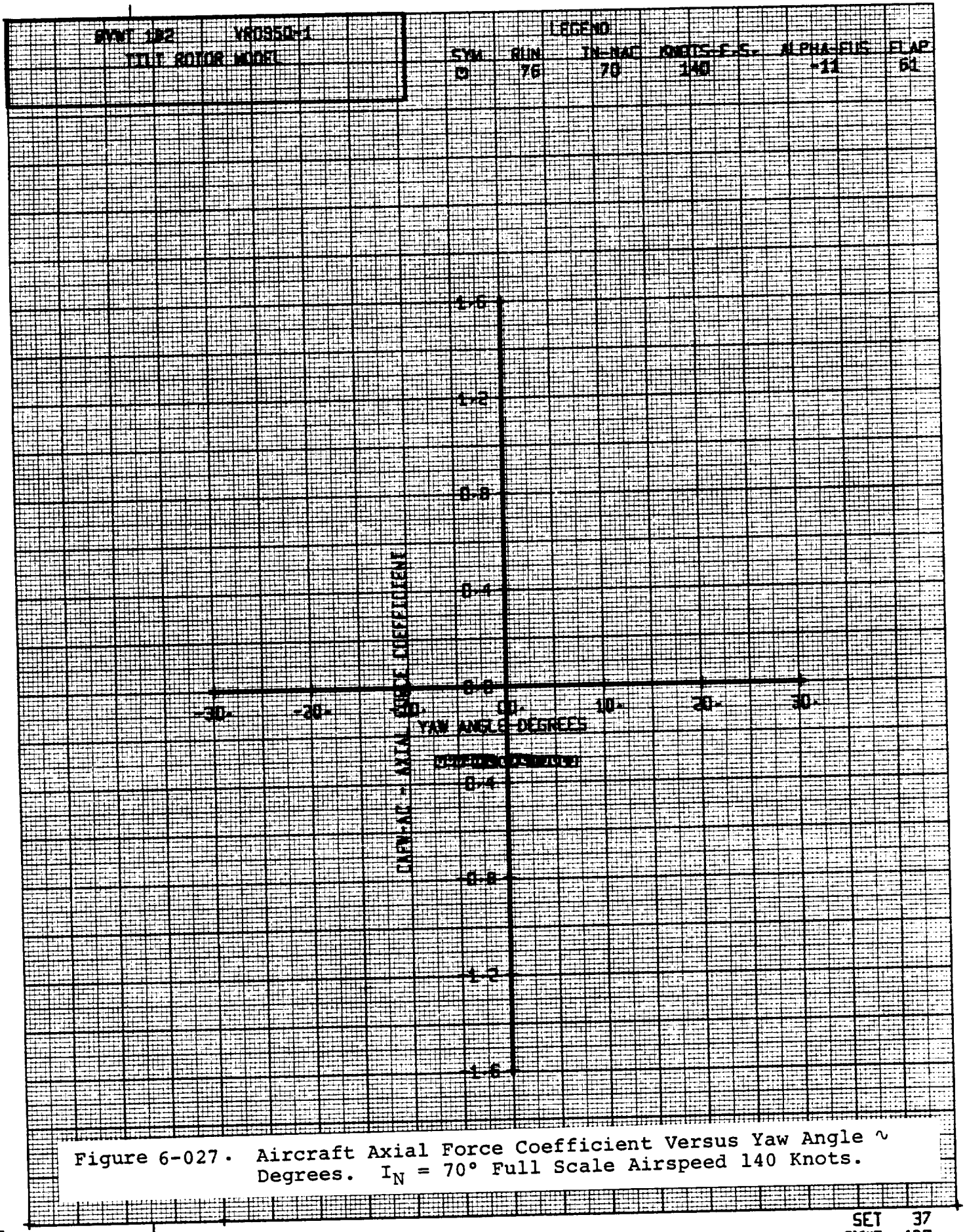


Figure 6-027. Aircraft Axial Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

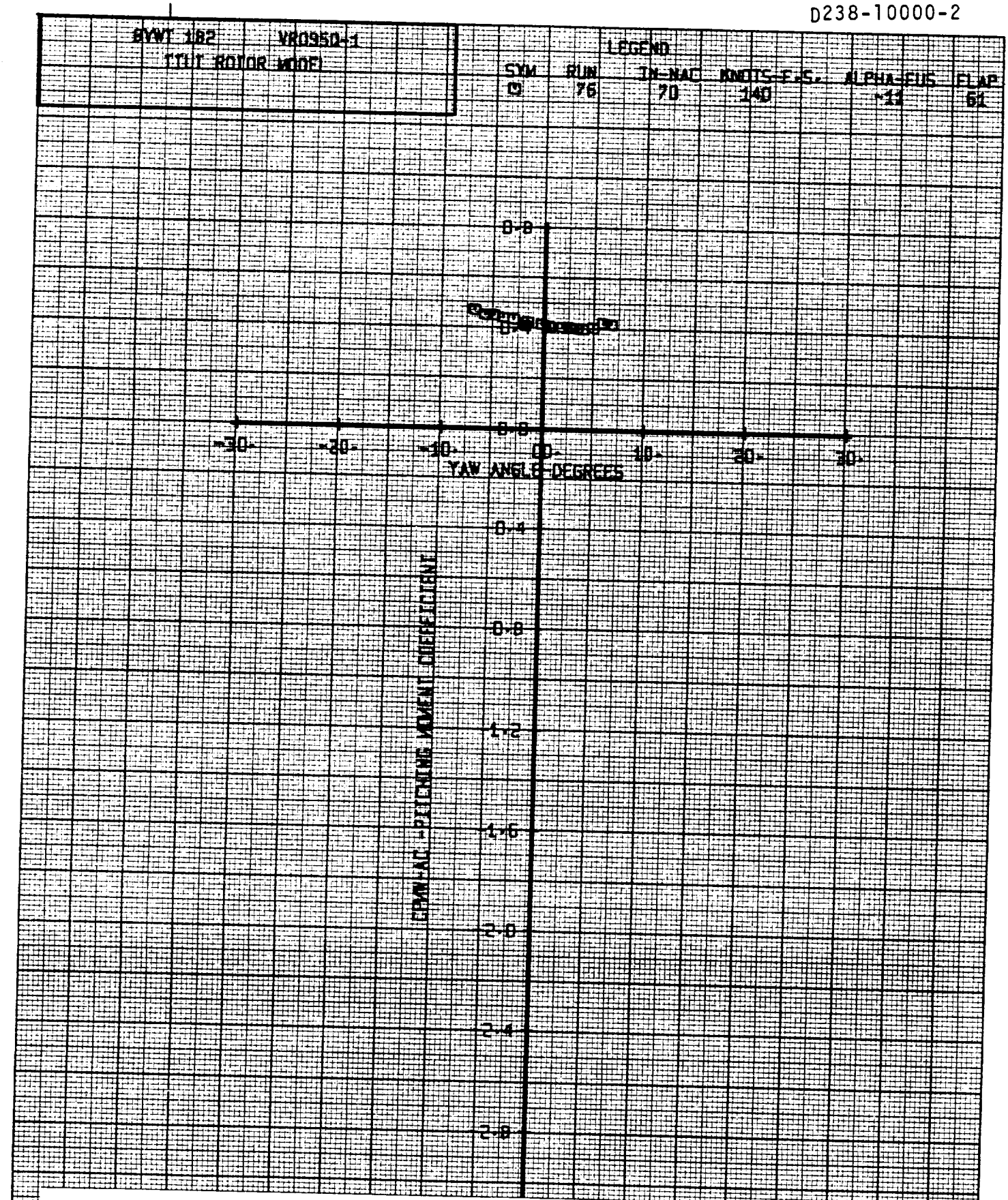


Figure 6-028. Aircraft Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

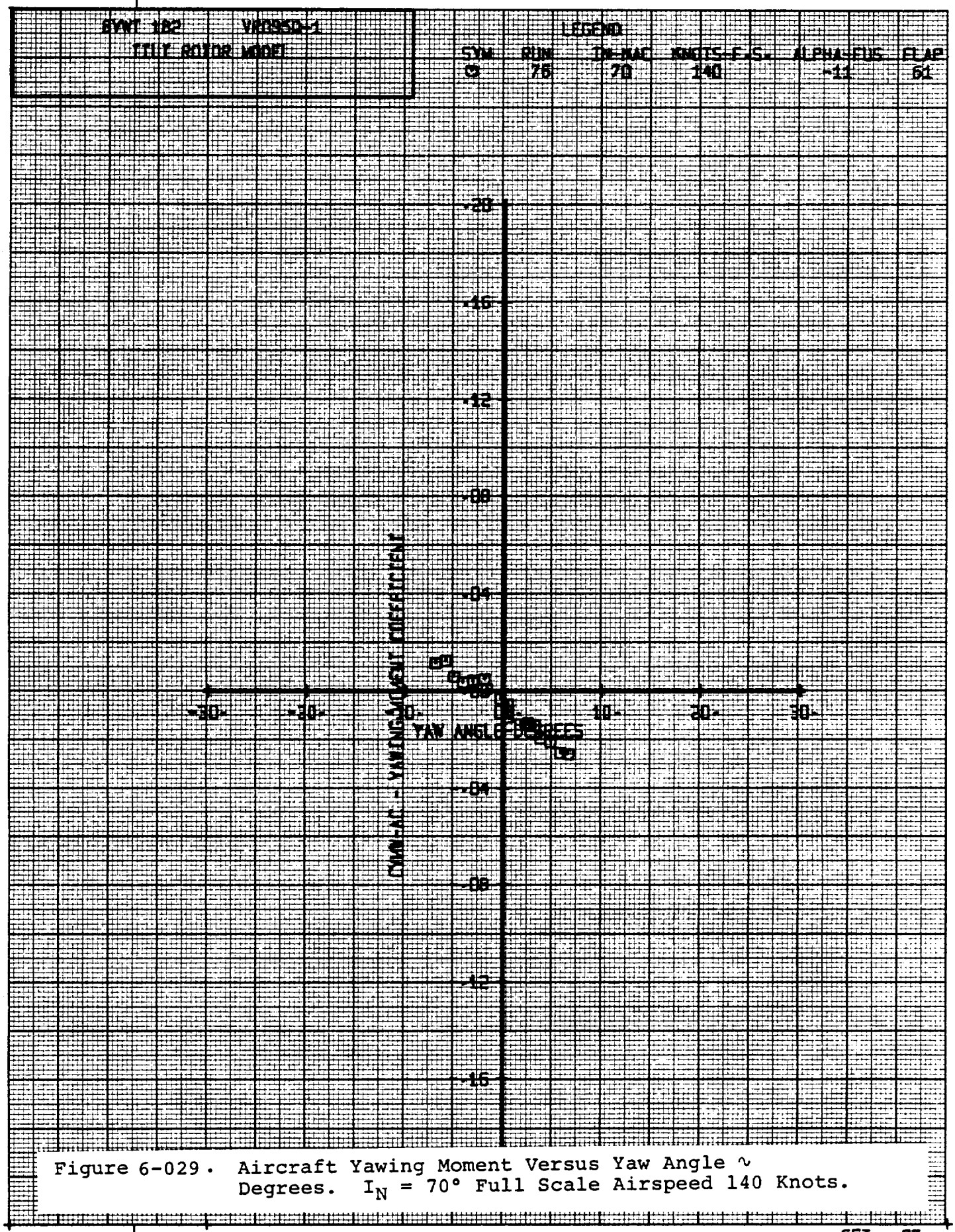


Figure 6-029. Aircraft Yawing Moment Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

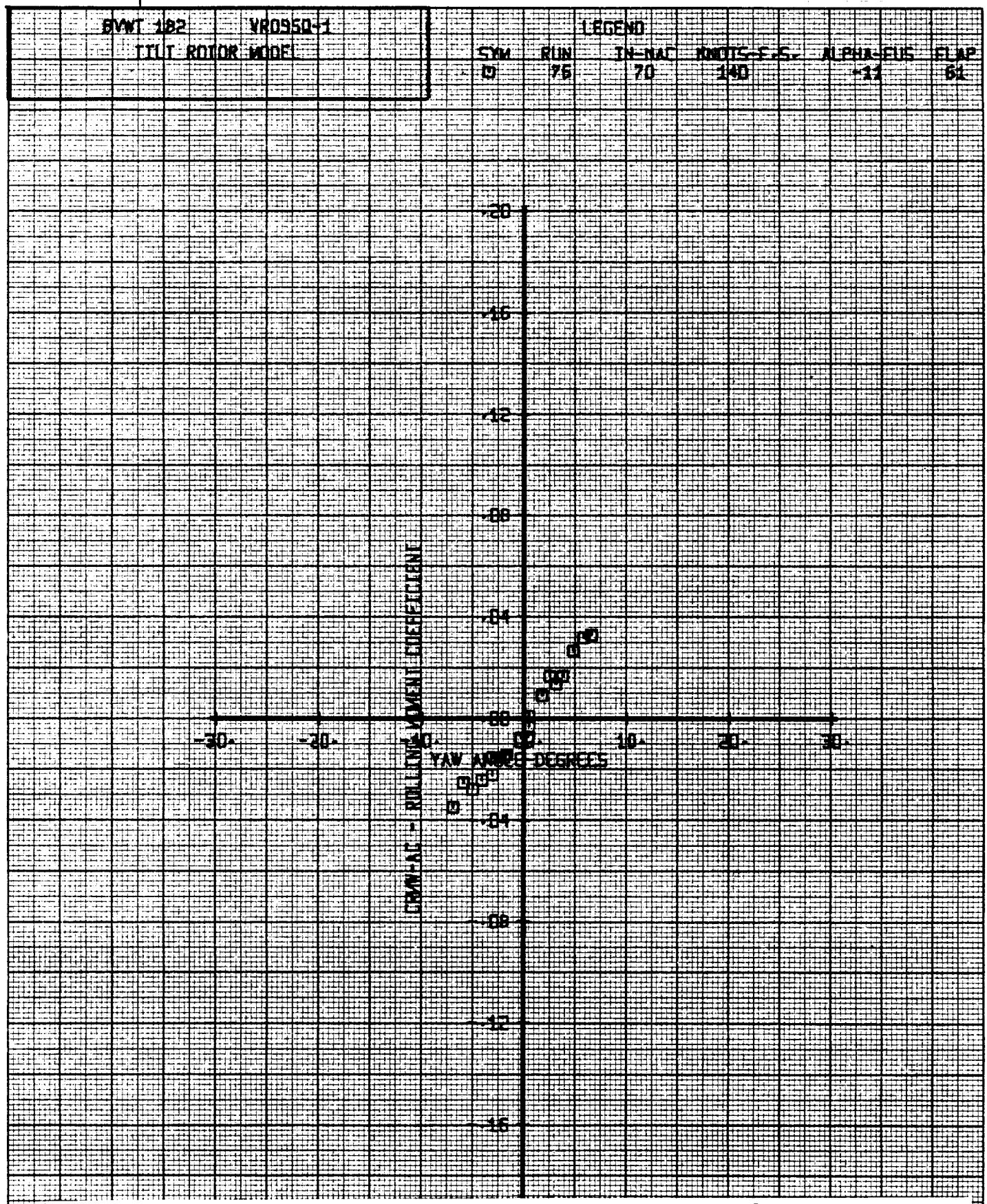


Figure 6-030. Aircraft Rolling Moment Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

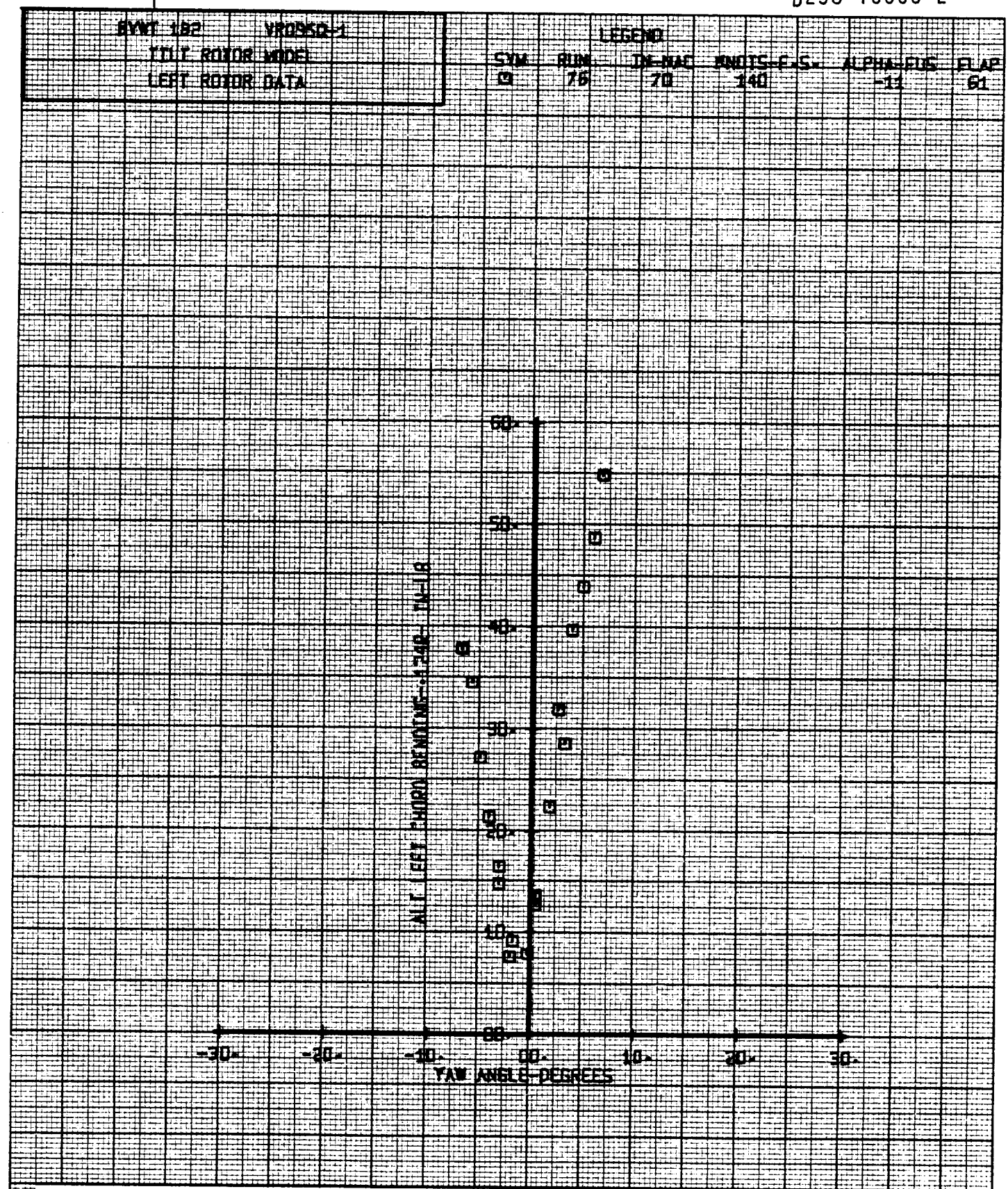


Figure 6-031. Alt. Left Chord Bending Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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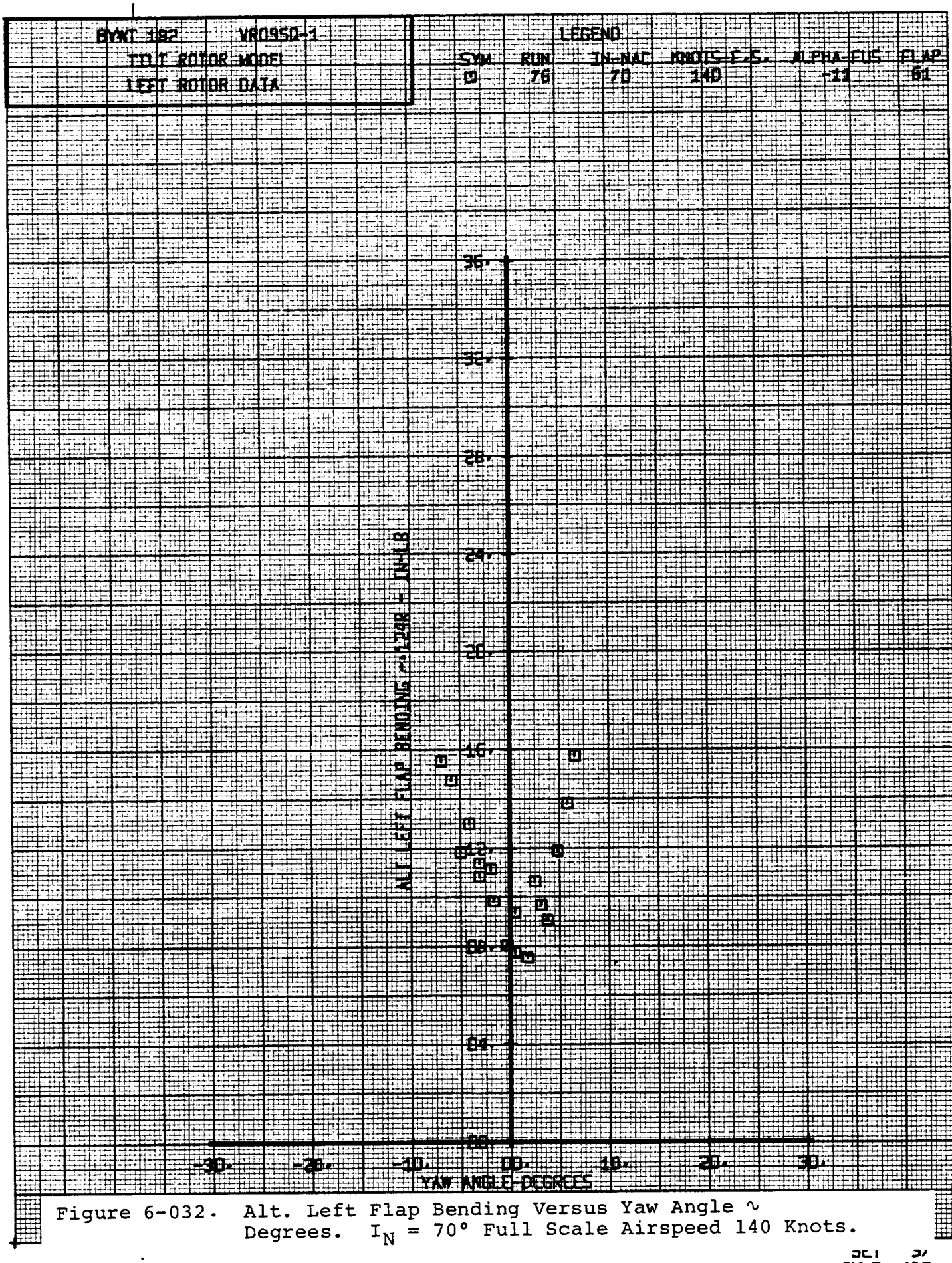


Figure 6-032. Alt. Left Flap Bending Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

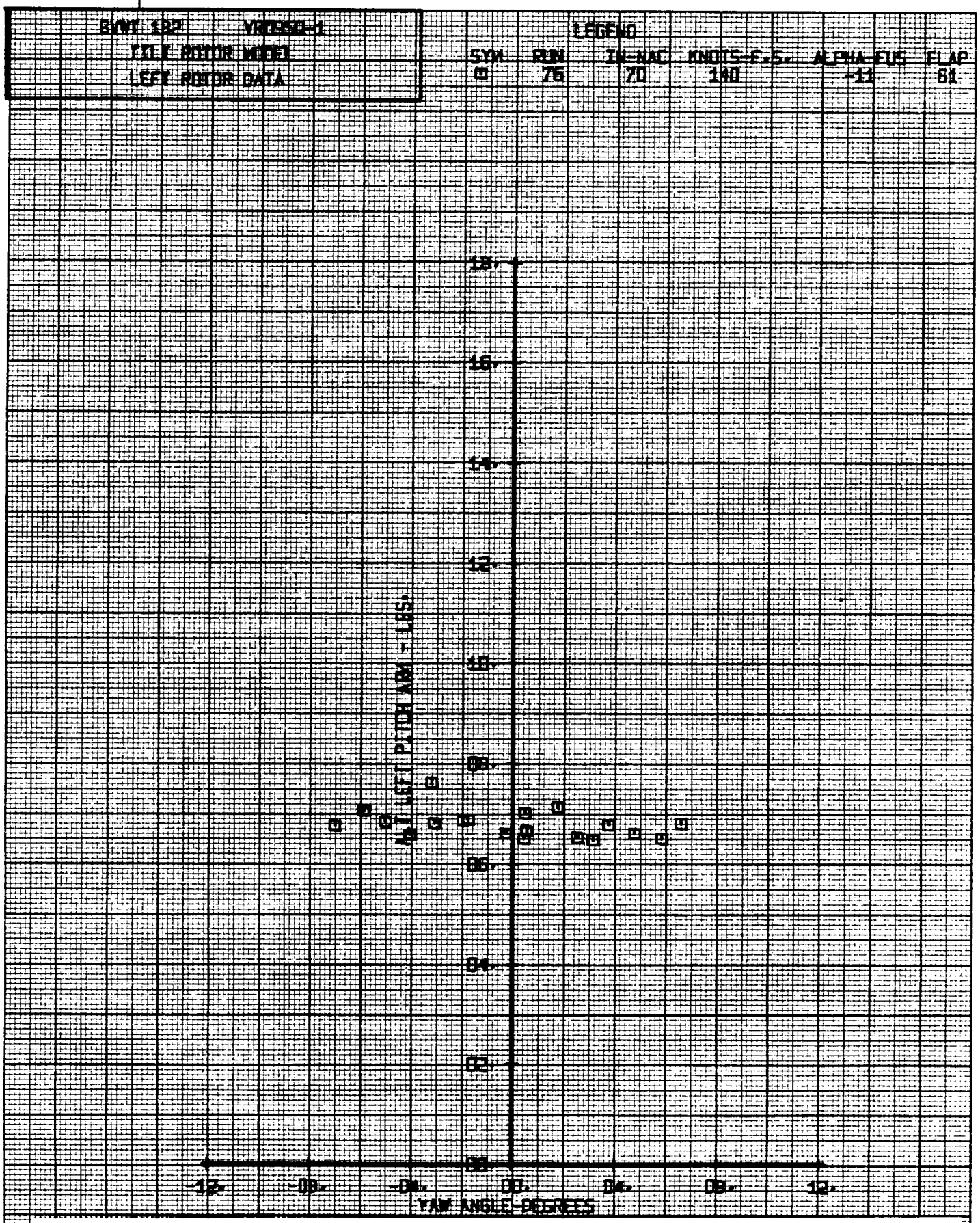


Figure 6-033. Alt. Left Pitch Link Load Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

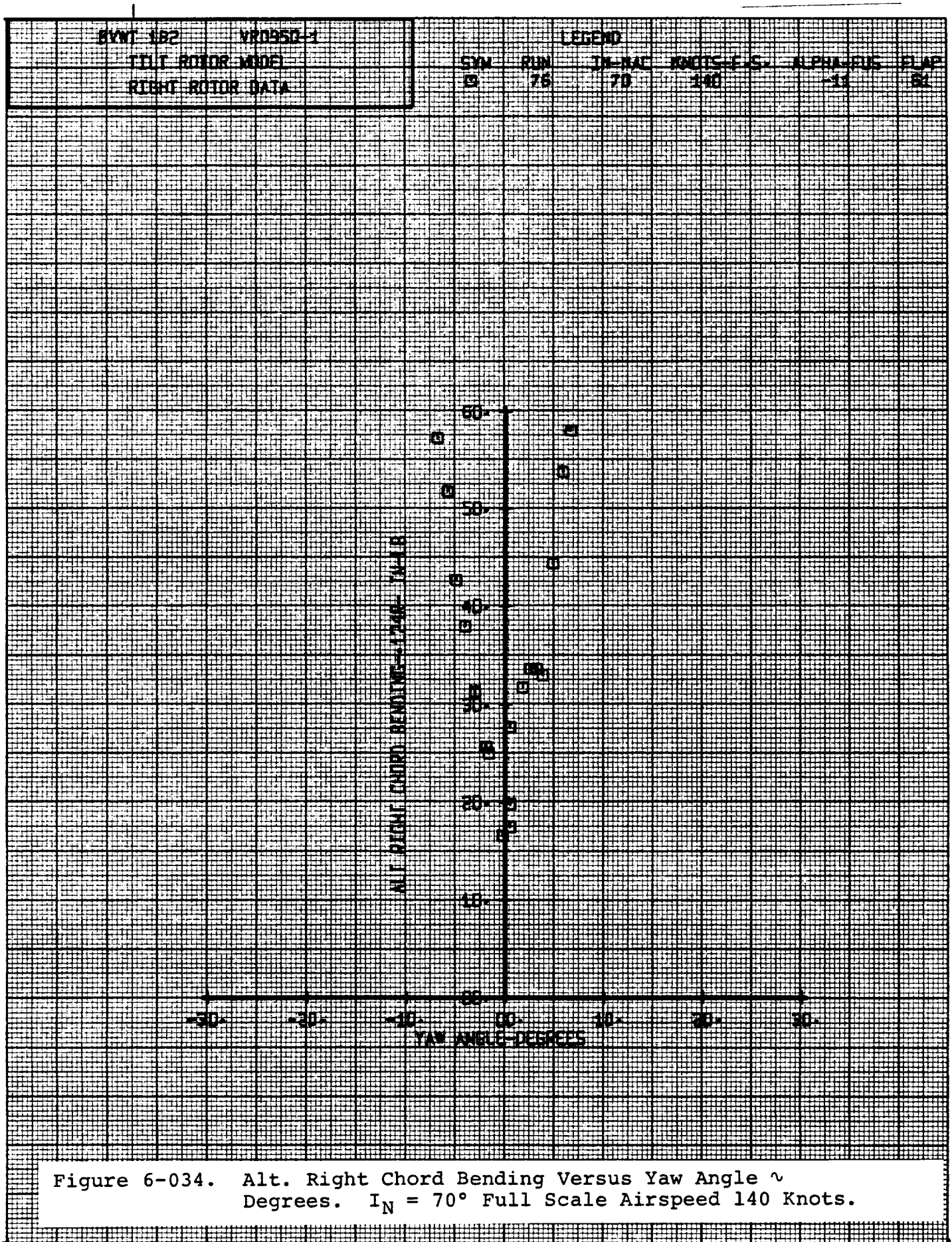


Figure 6-034. Alt. Right Chord Bending Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

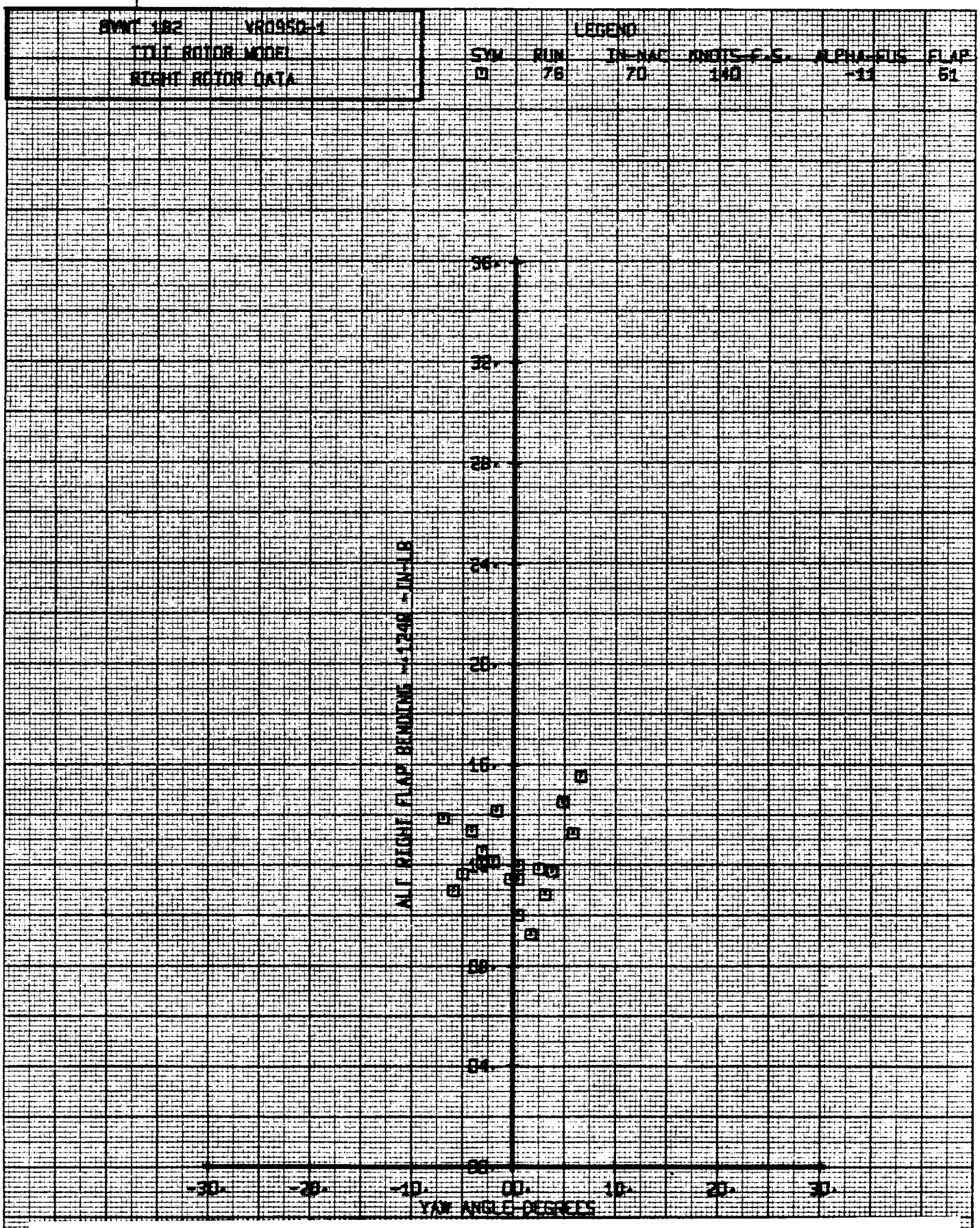


Figure 6-035. Alt. Right Flap Bending Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

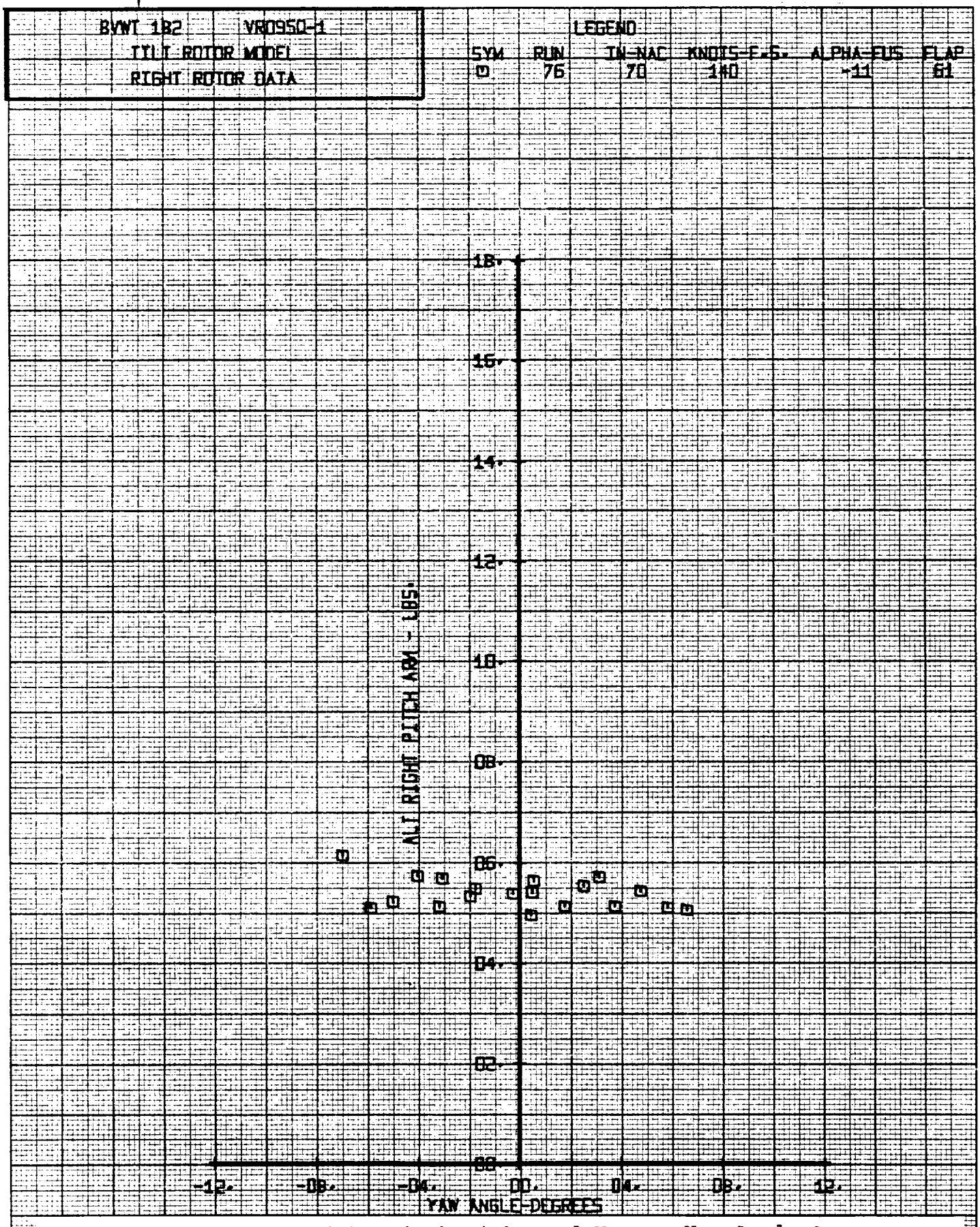


Figure 6-036. Alt. Right Pitch Link Load Versus Yaw Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

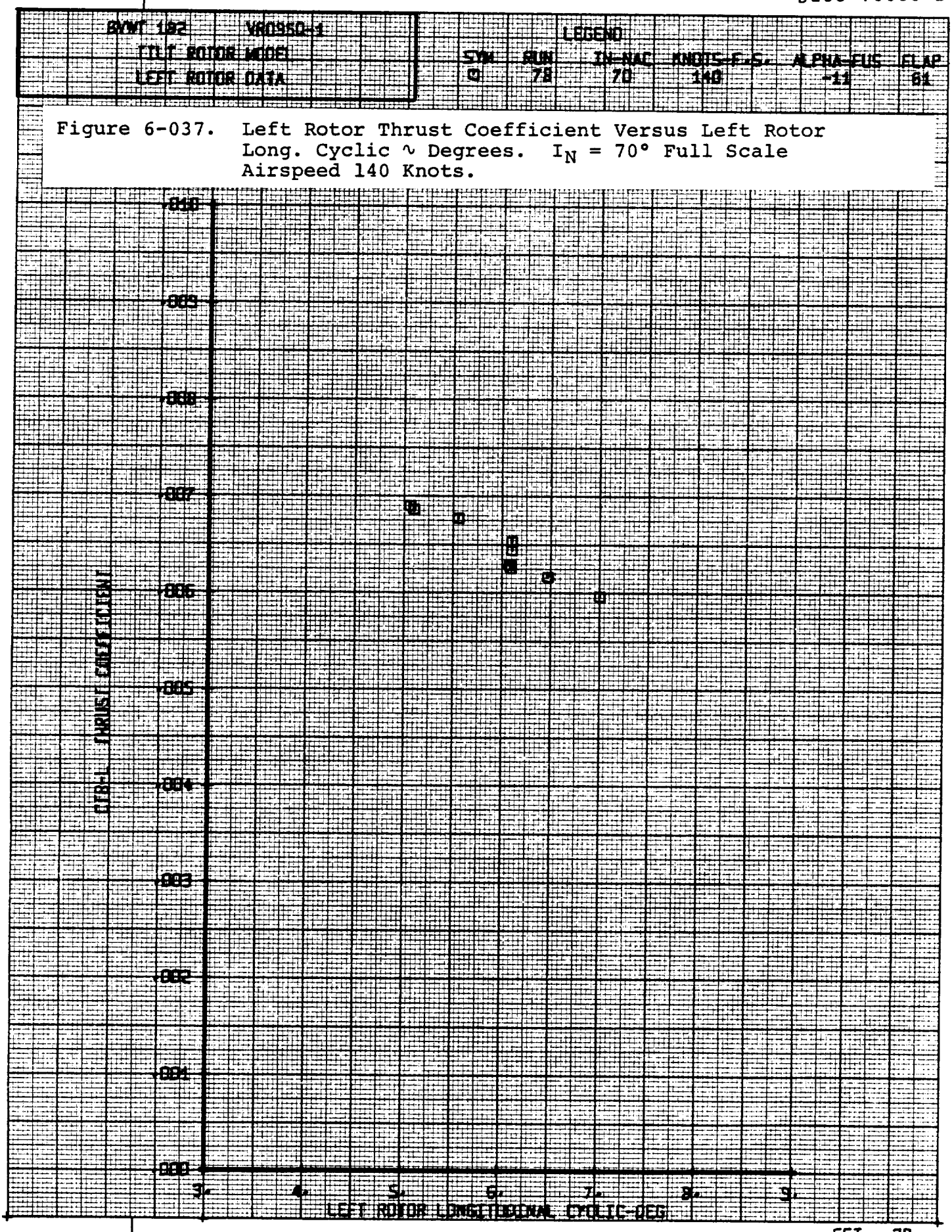


Figure 6-037. Left Rotor Thrust Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

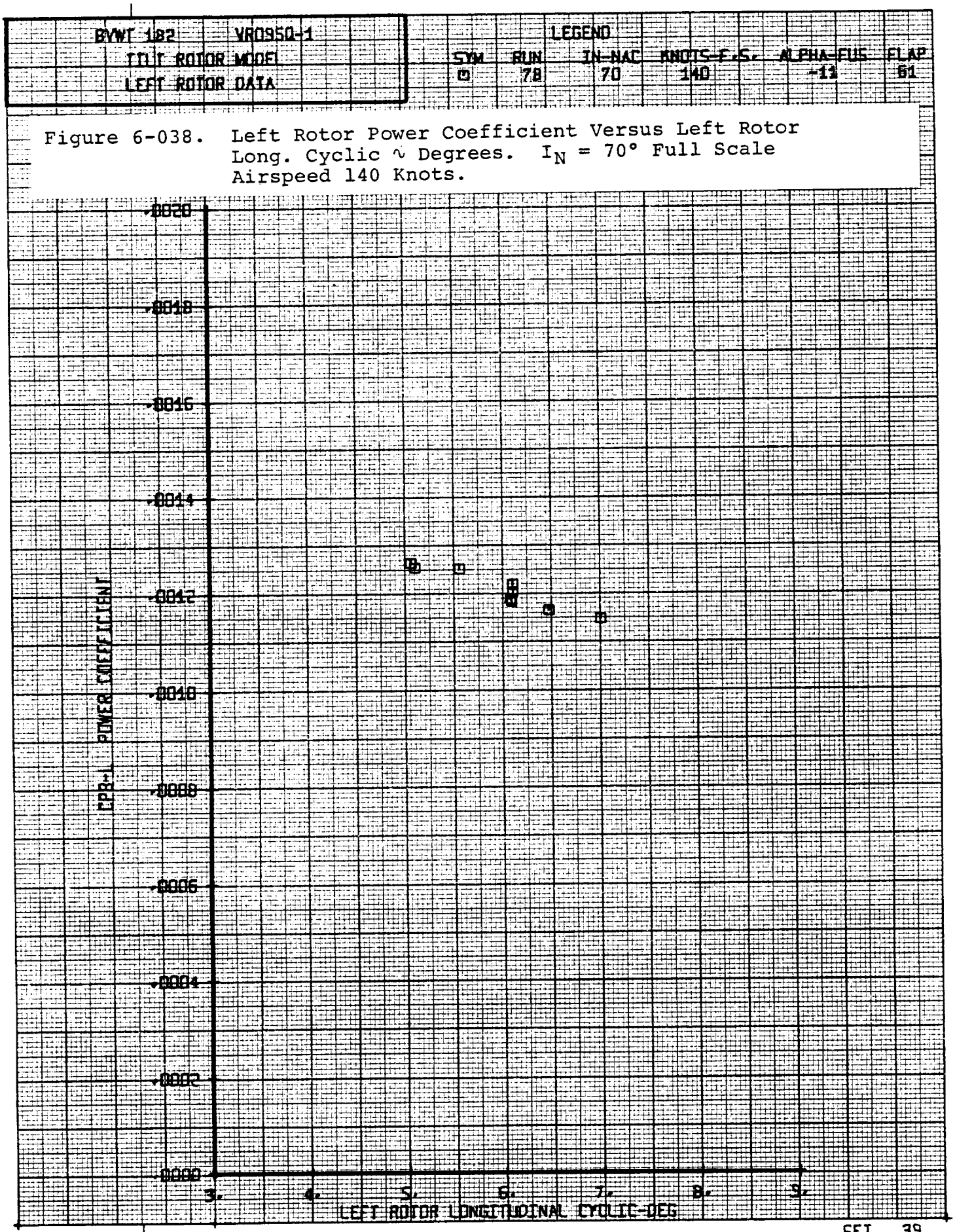


Figure 6-038. Left Rotor Power Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

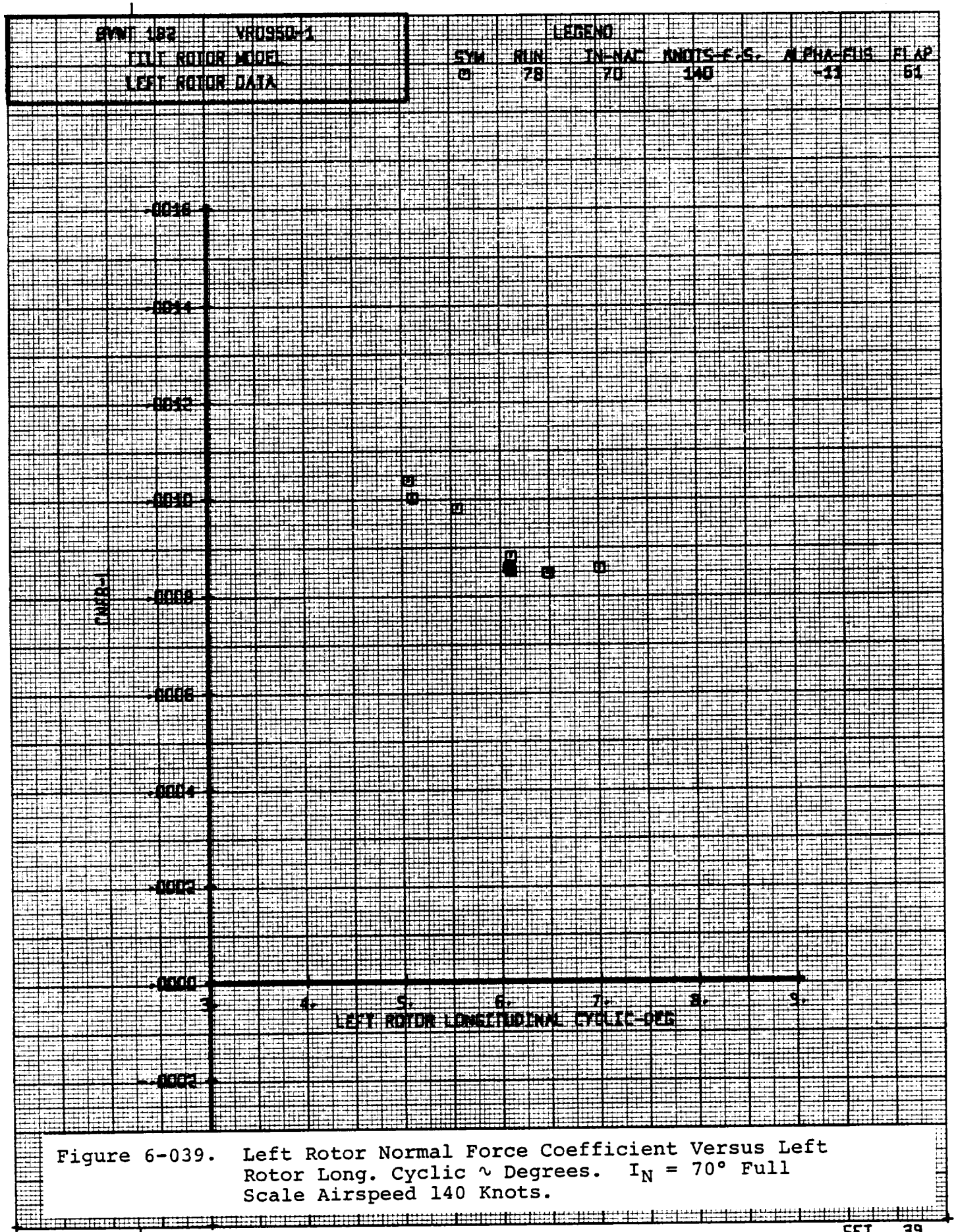


Figure 6-039. Left Rotor Normal Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

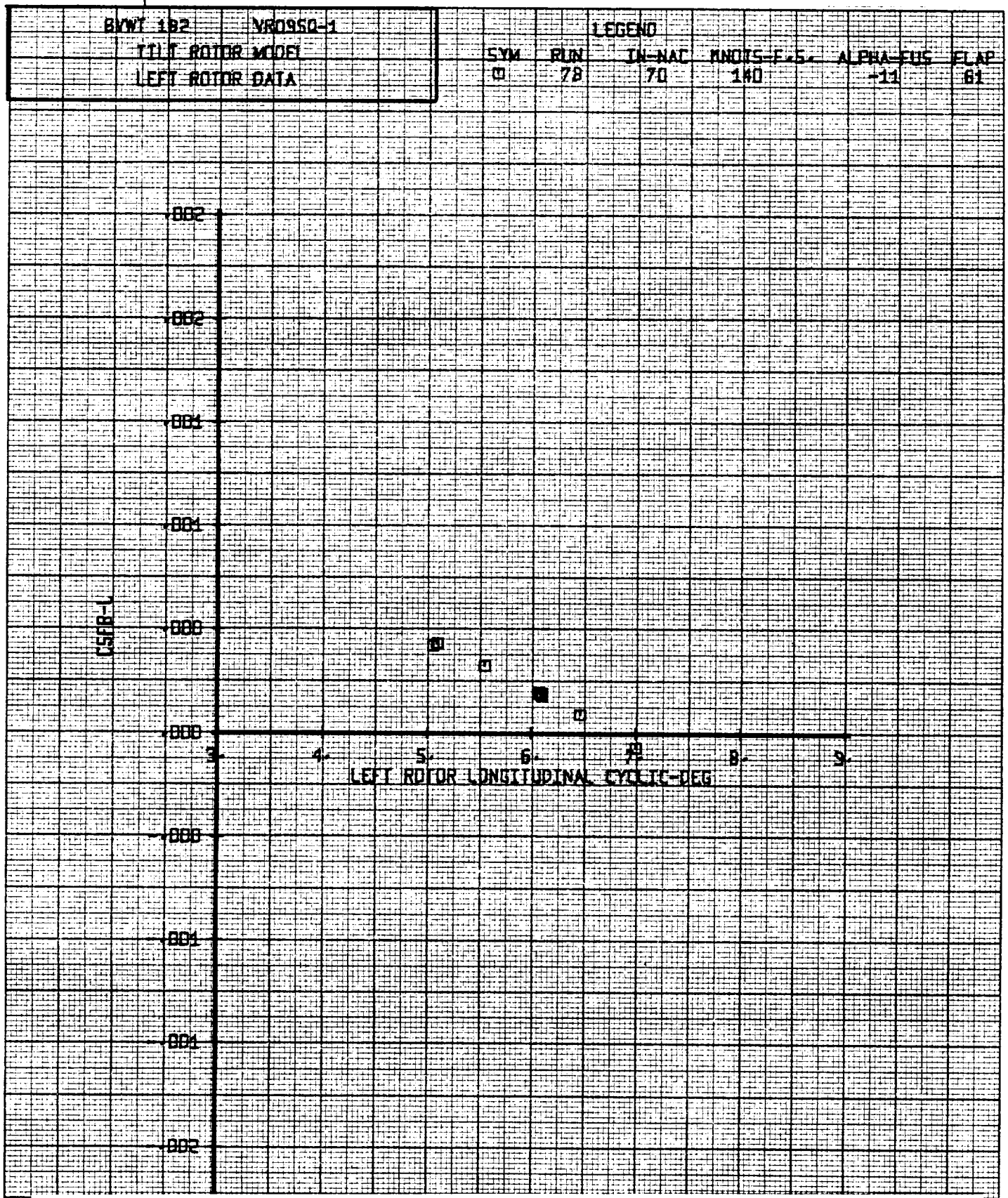


Figure 6-040. Left Rotor Side Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

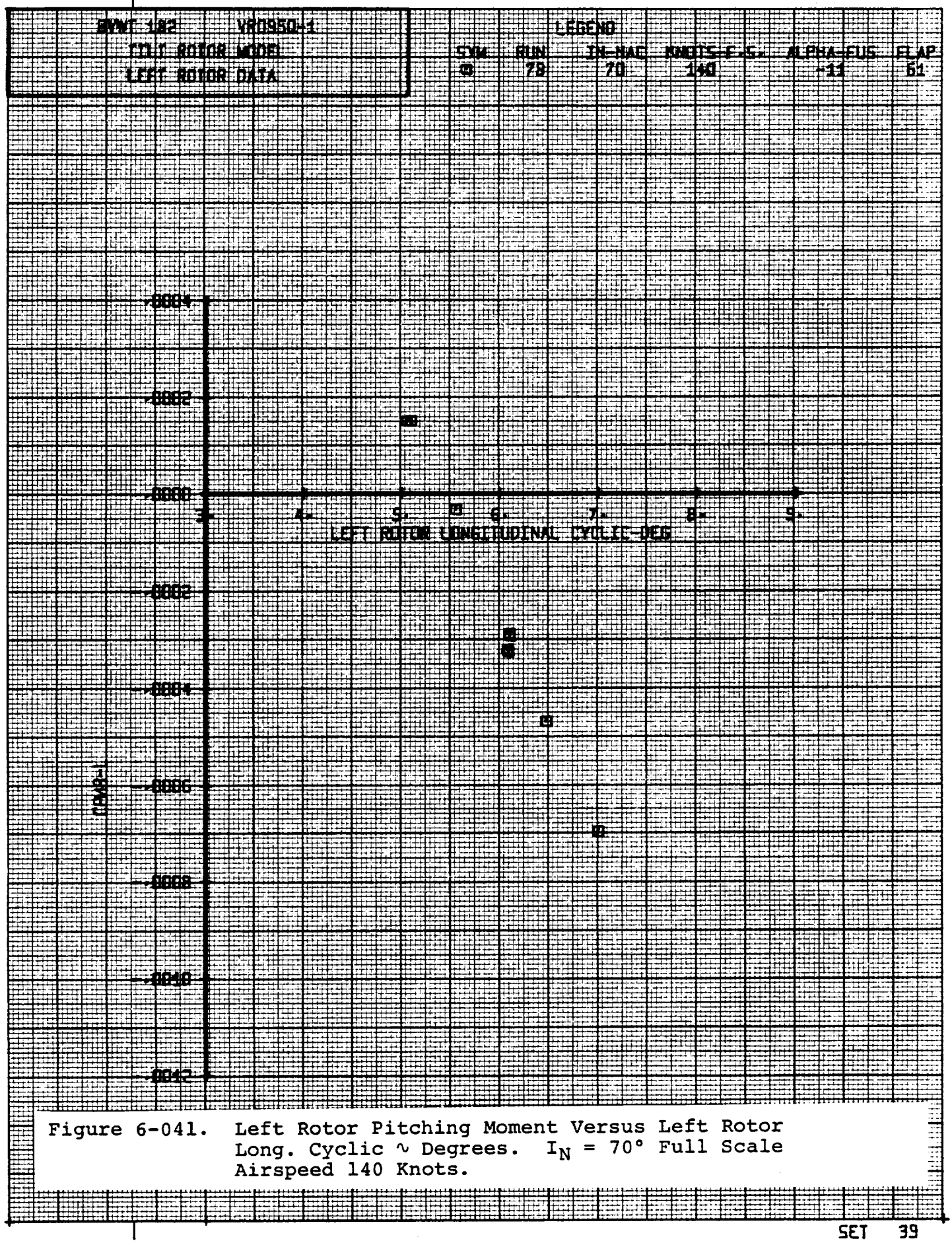


Figure 6-041. Left Rotor Pitching Moment Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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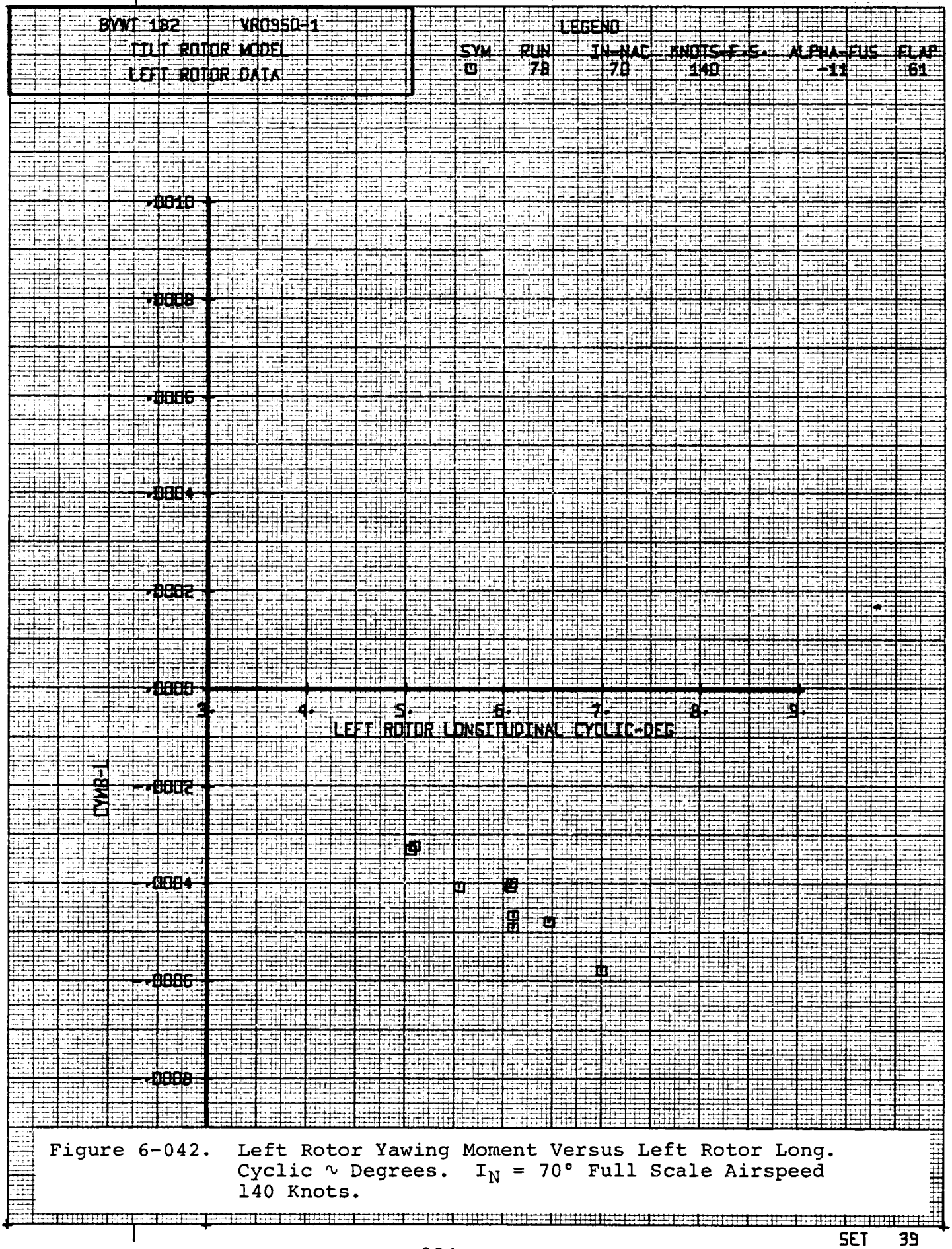


Figure 6-042. Left Rotor Yawing Moment Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

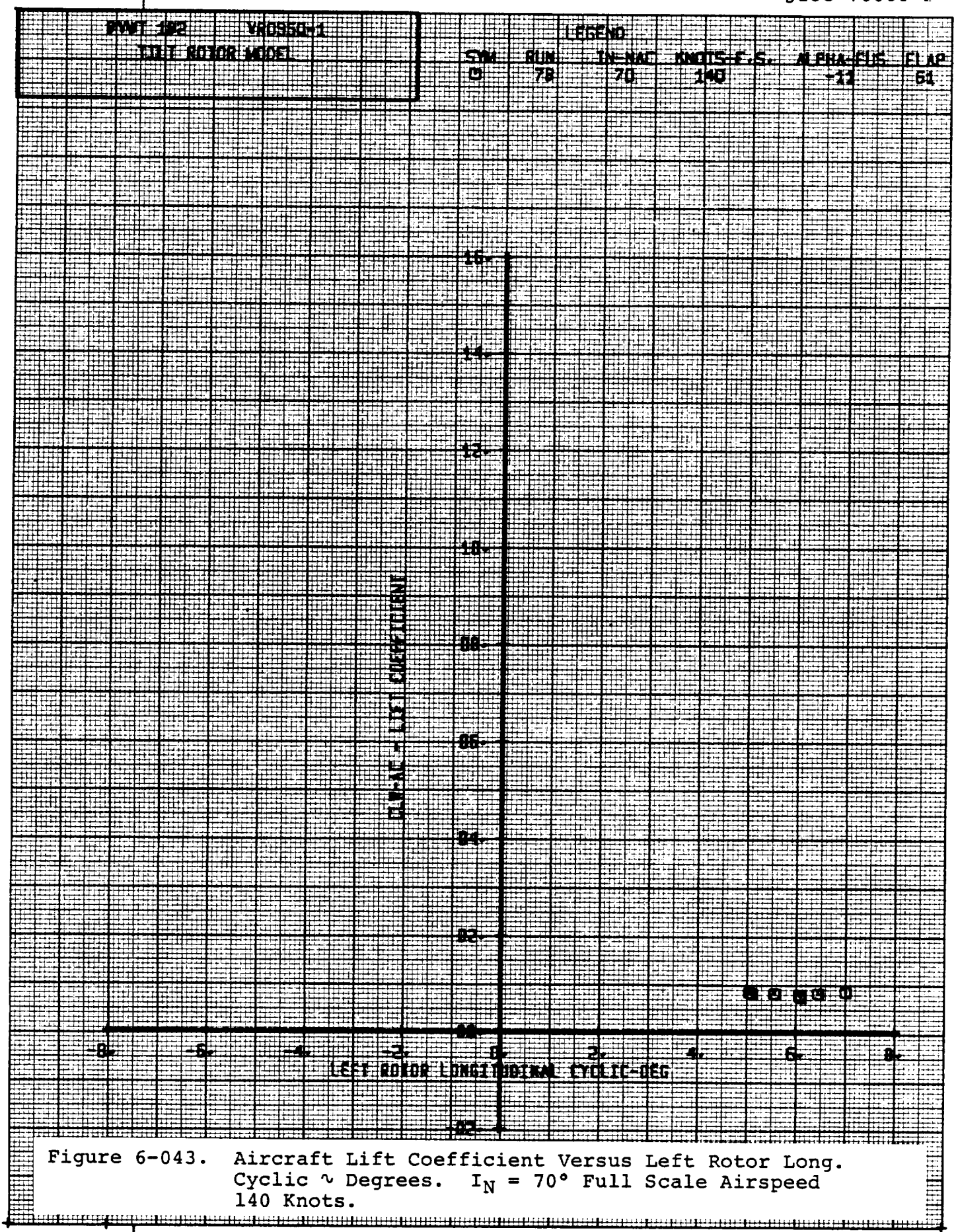


Figure 6-043. Aircraft Lift Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

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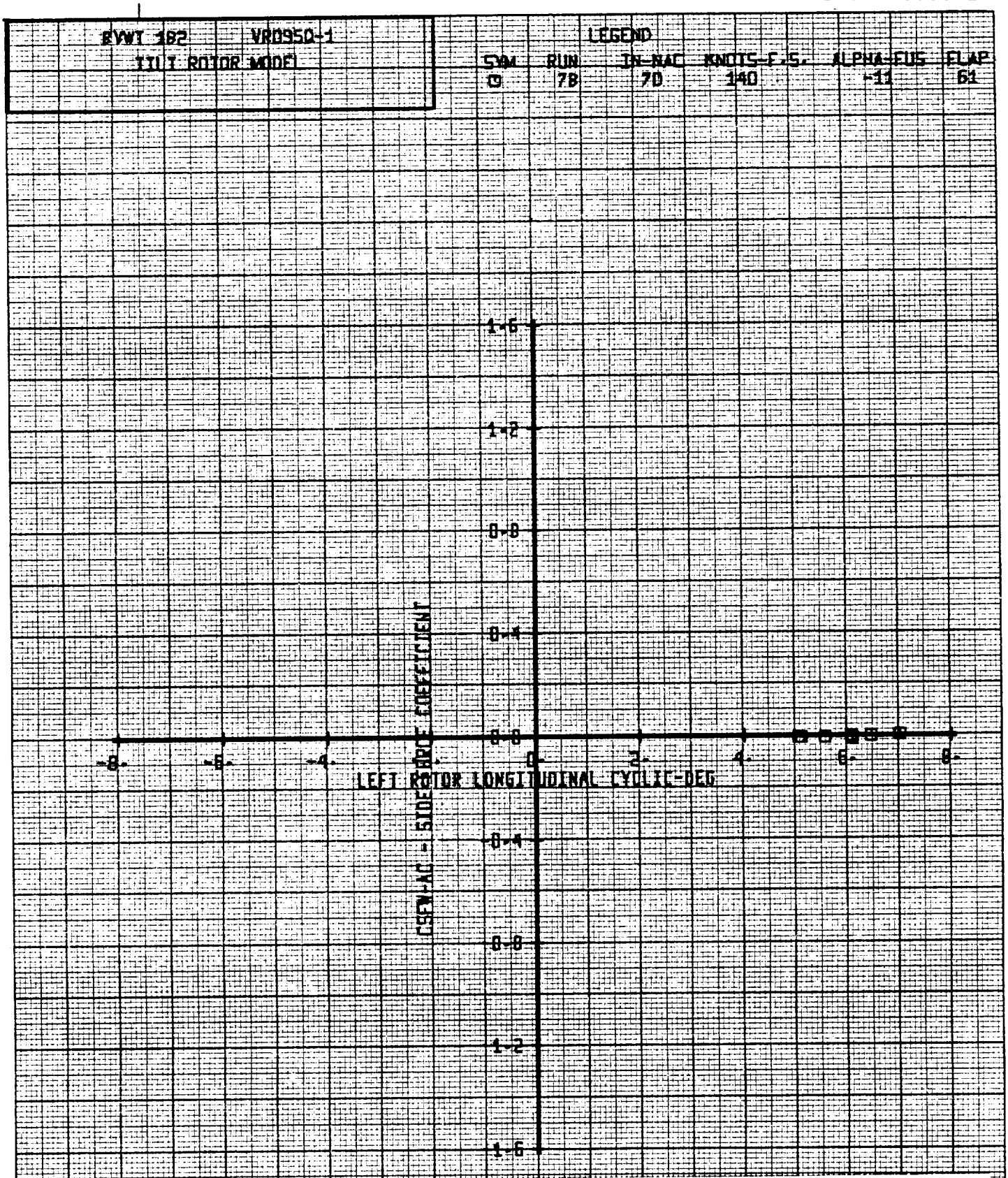


Figure 6-044. Aircraft Side Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

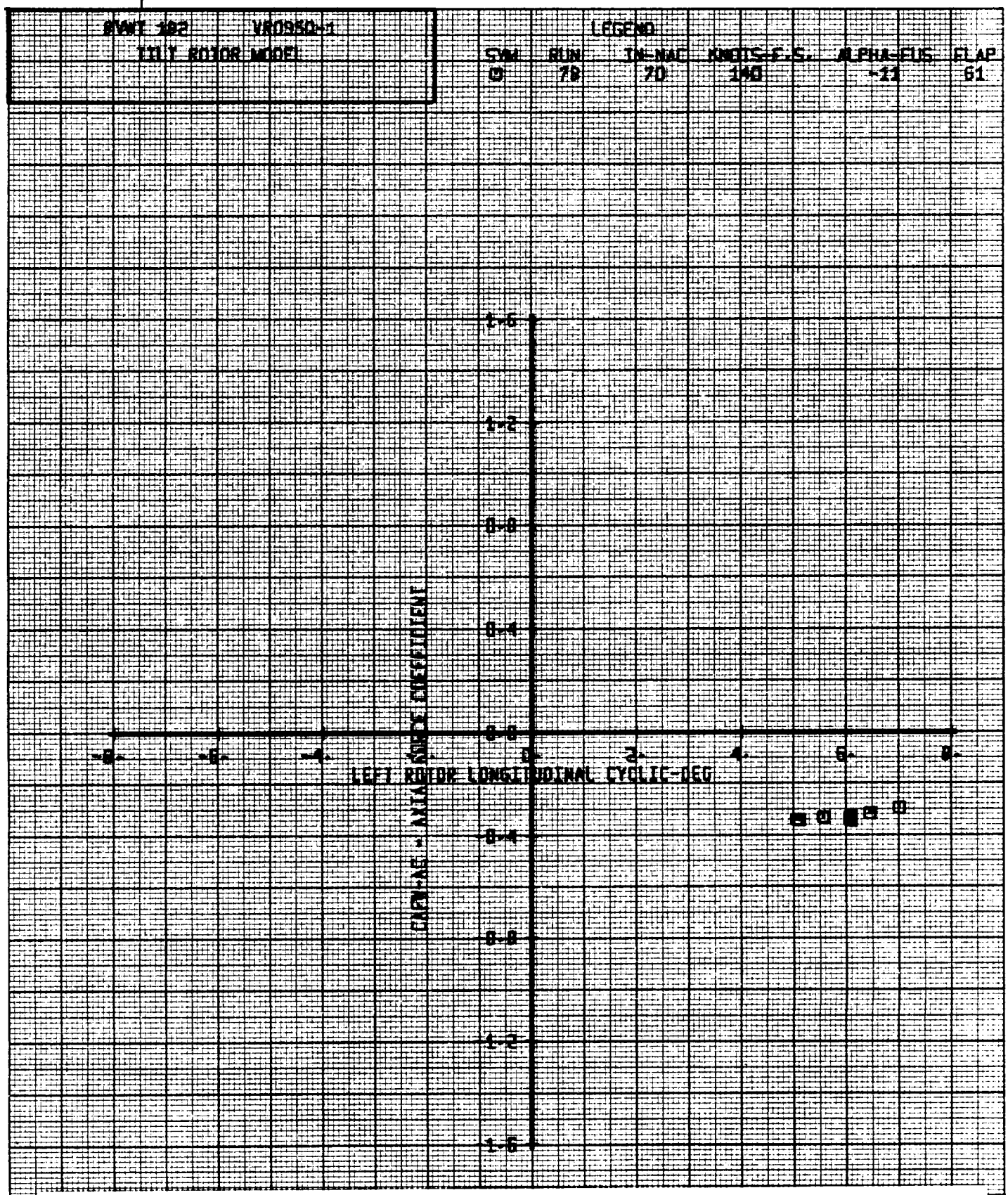


Figure 6-045. Aircraft Axial Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

FT 39
182

SET 39
BVWT 182

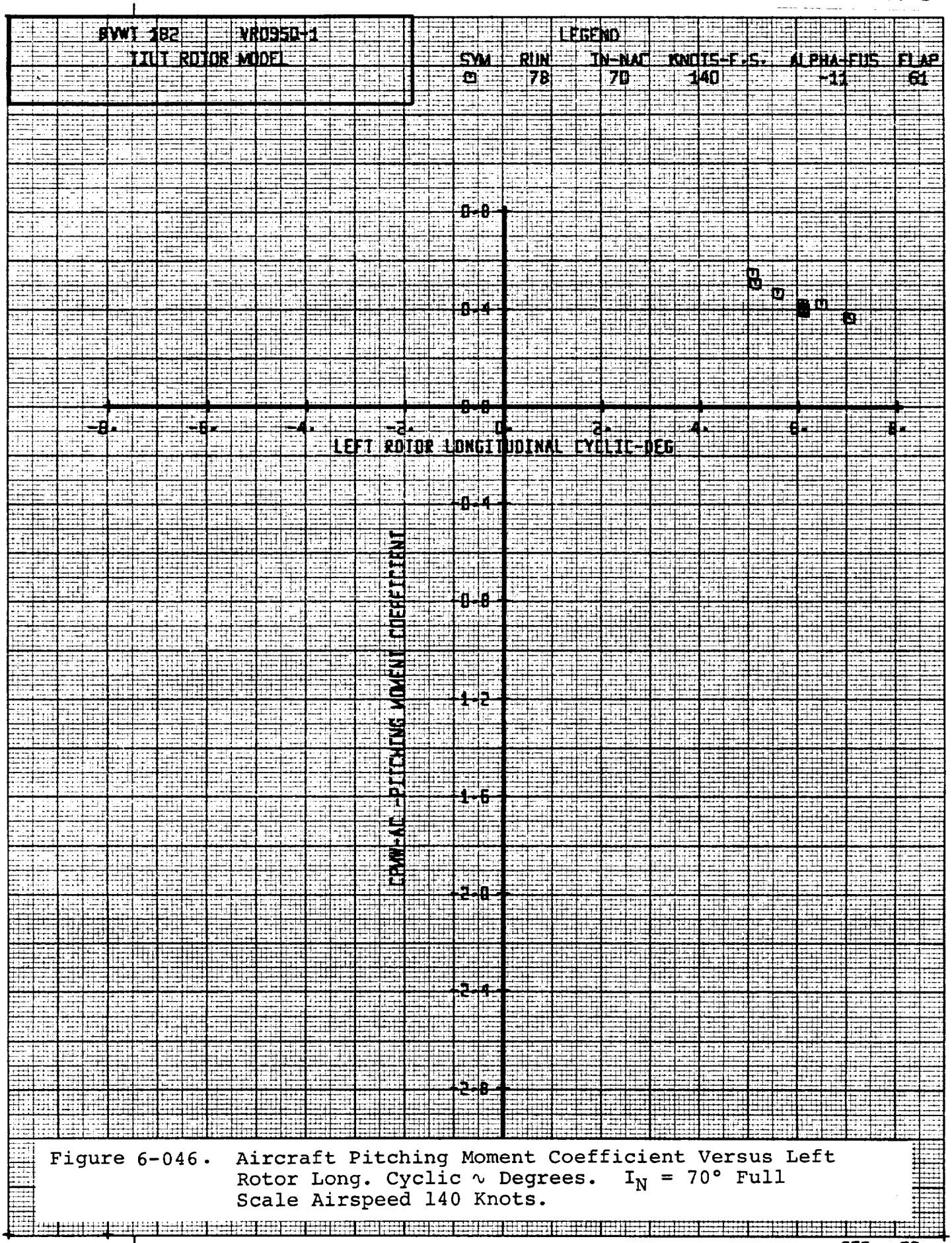


Figure 6-046. Aircraft Pitching Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

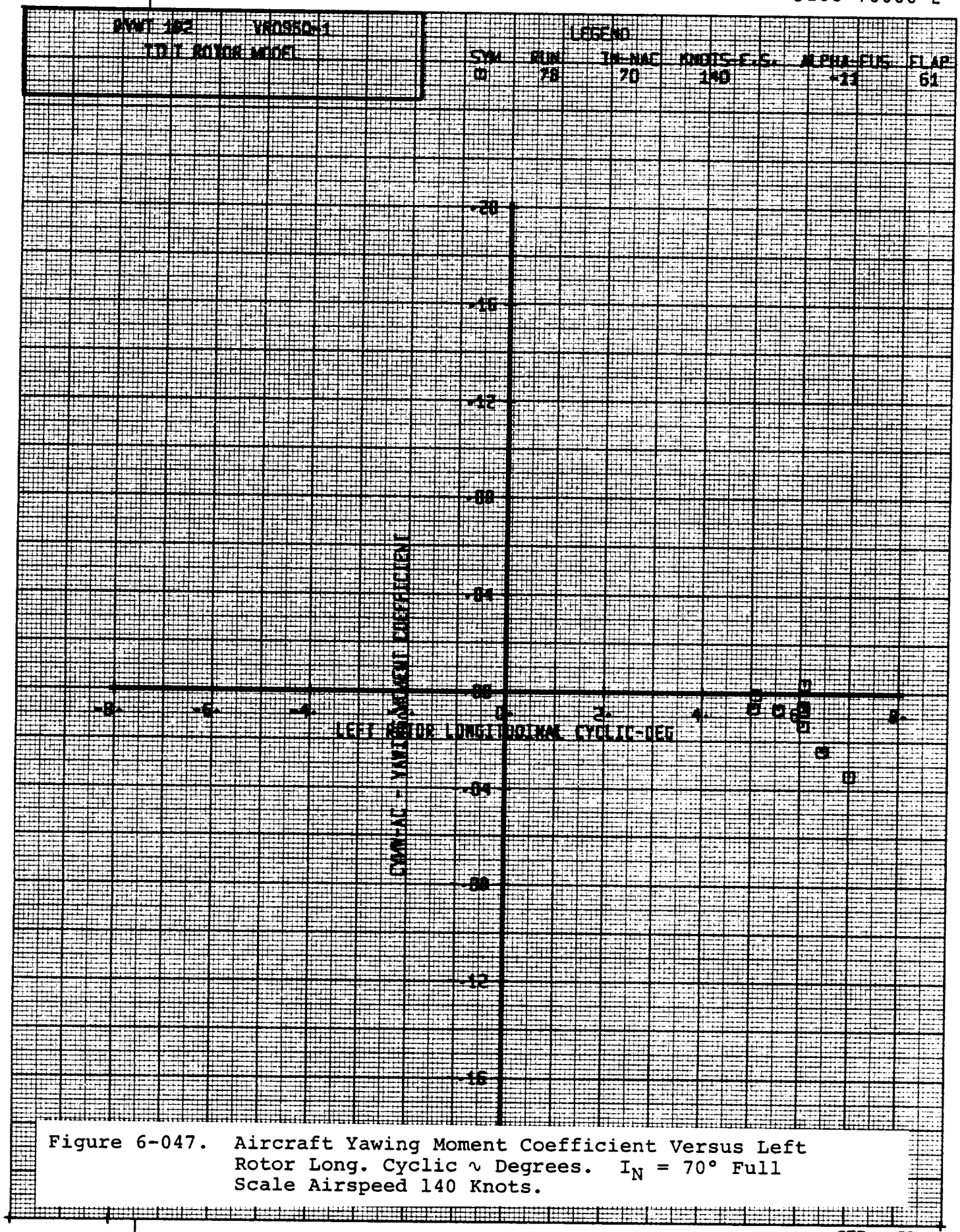


Figure 6-047. Aircraft Yawing Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

ET 39
182

SET 39
BVWT 182

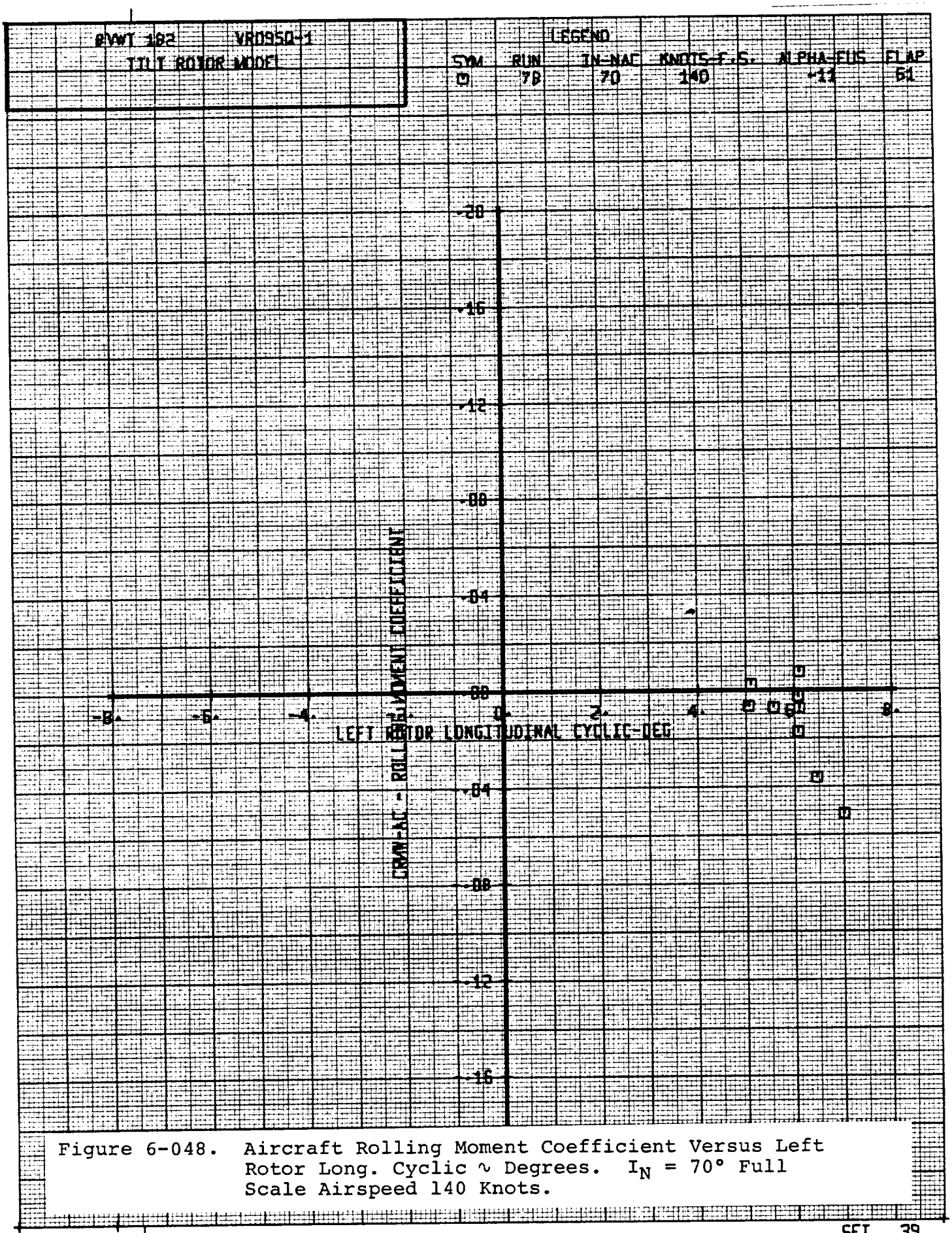


Figure 6-048. Aircraft Rolling Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

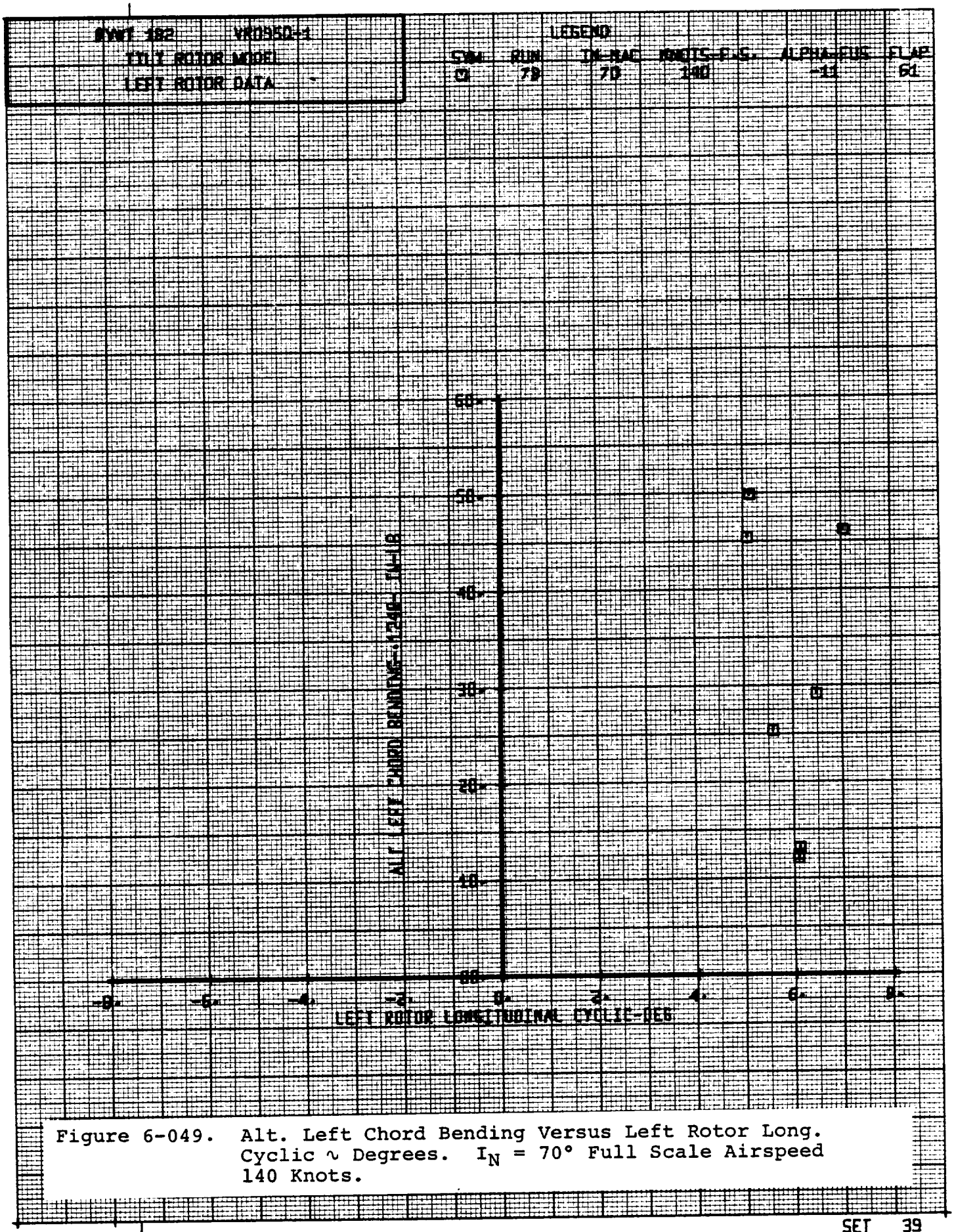


Figure 6-049. Alt. Left Chord Bending Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

SET 39
BVWT 182

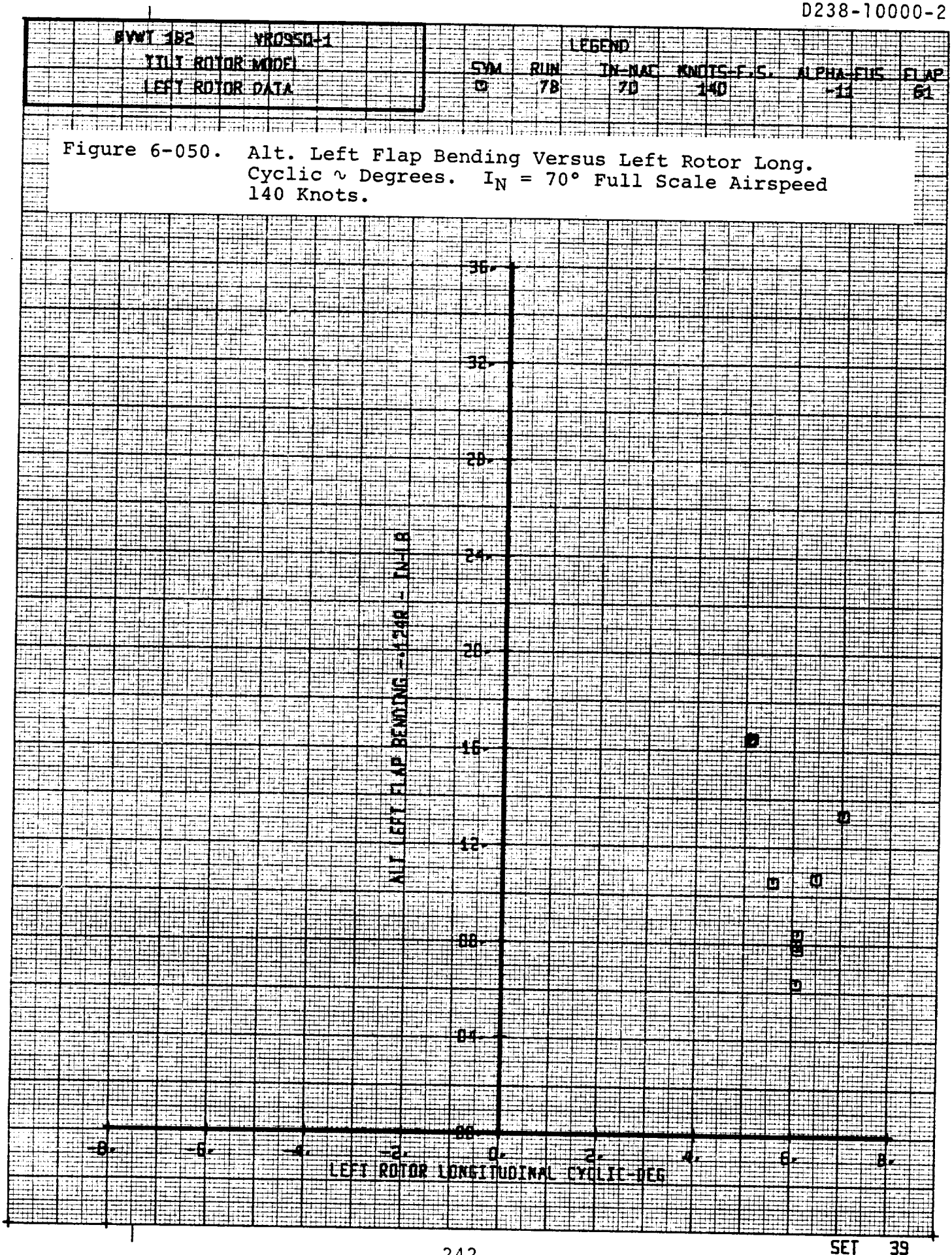


Figure 6-050. Alt. Left Flap Bending Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

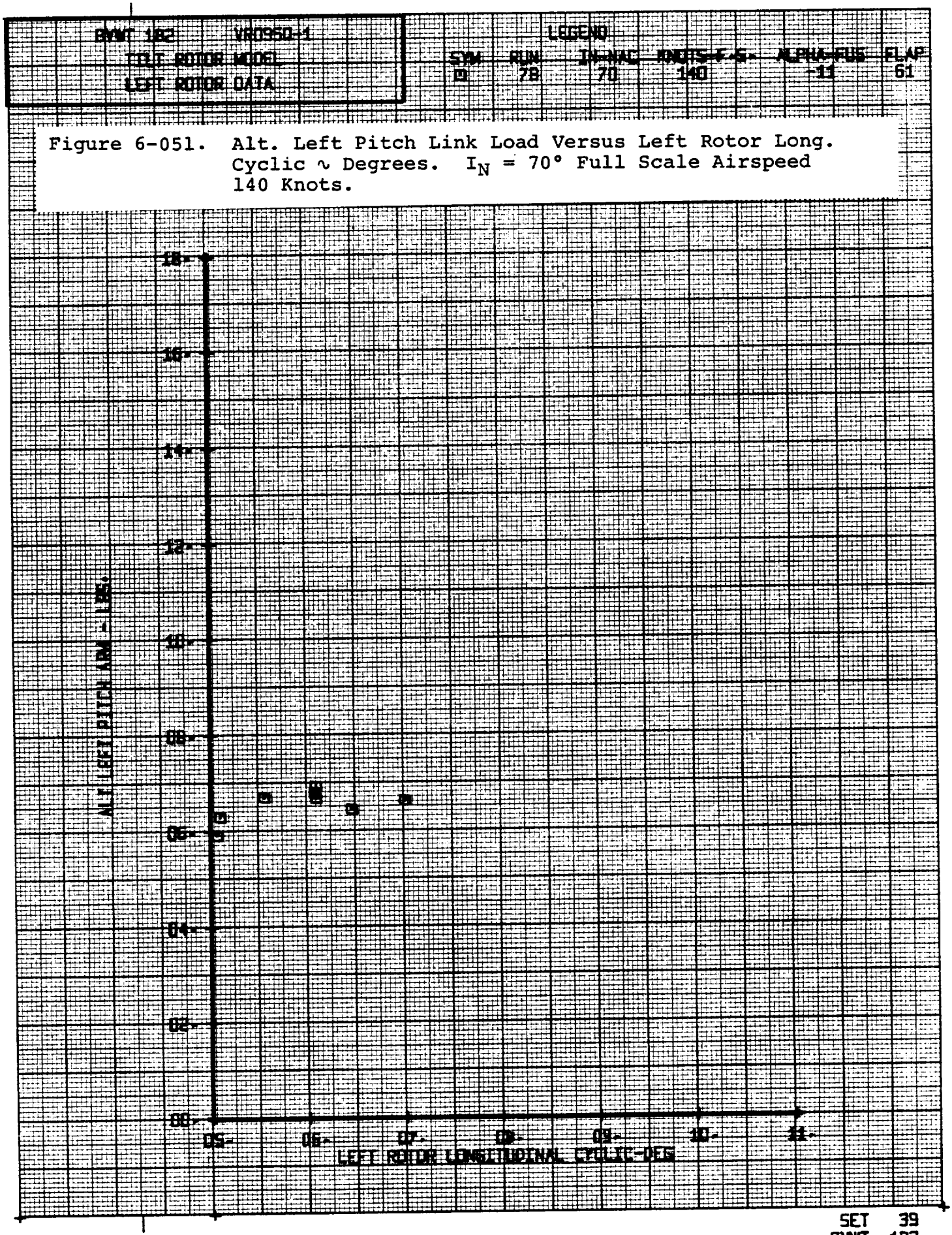


Figure 6-051. Alt. Left Pitch Link Load Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

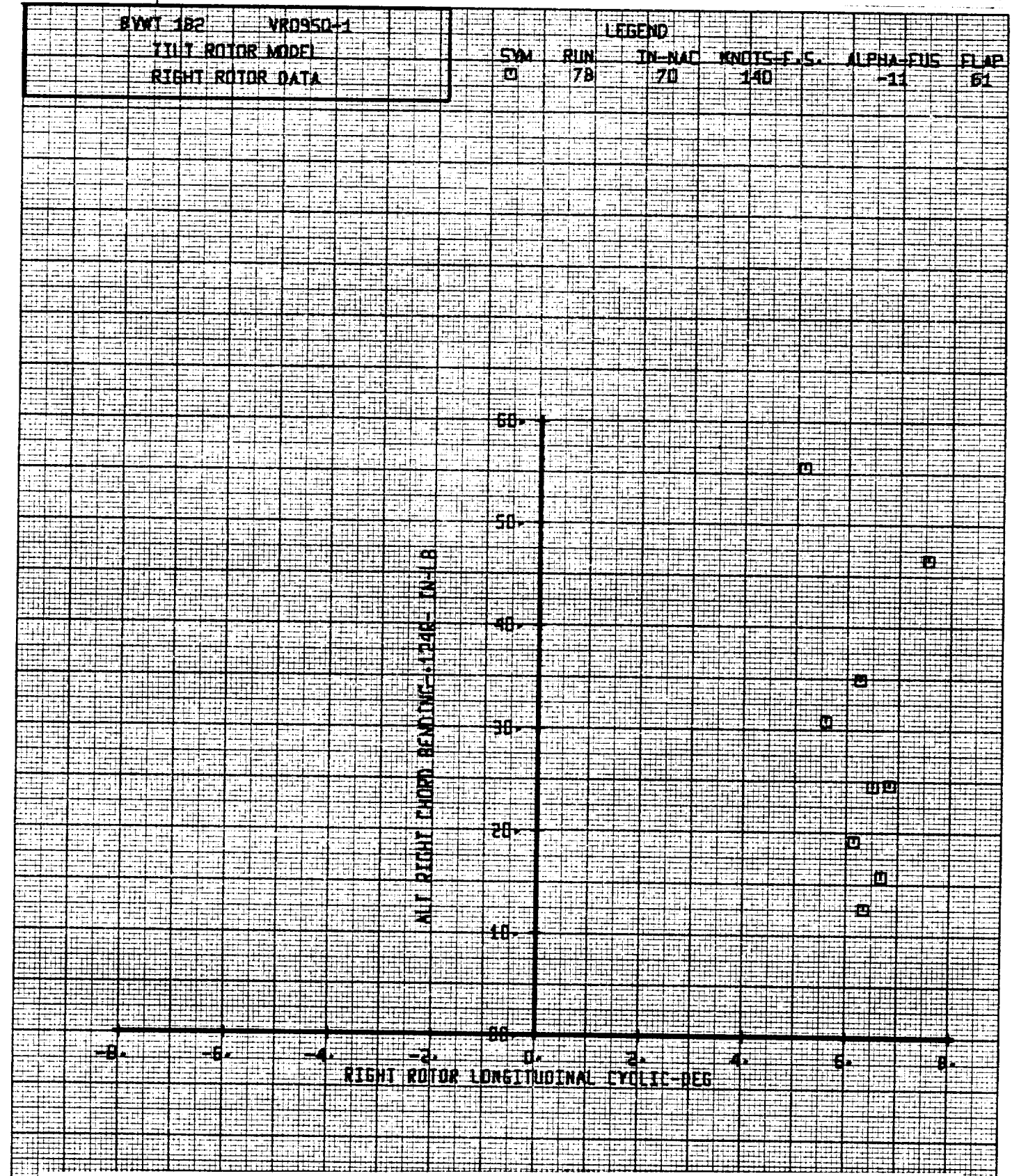
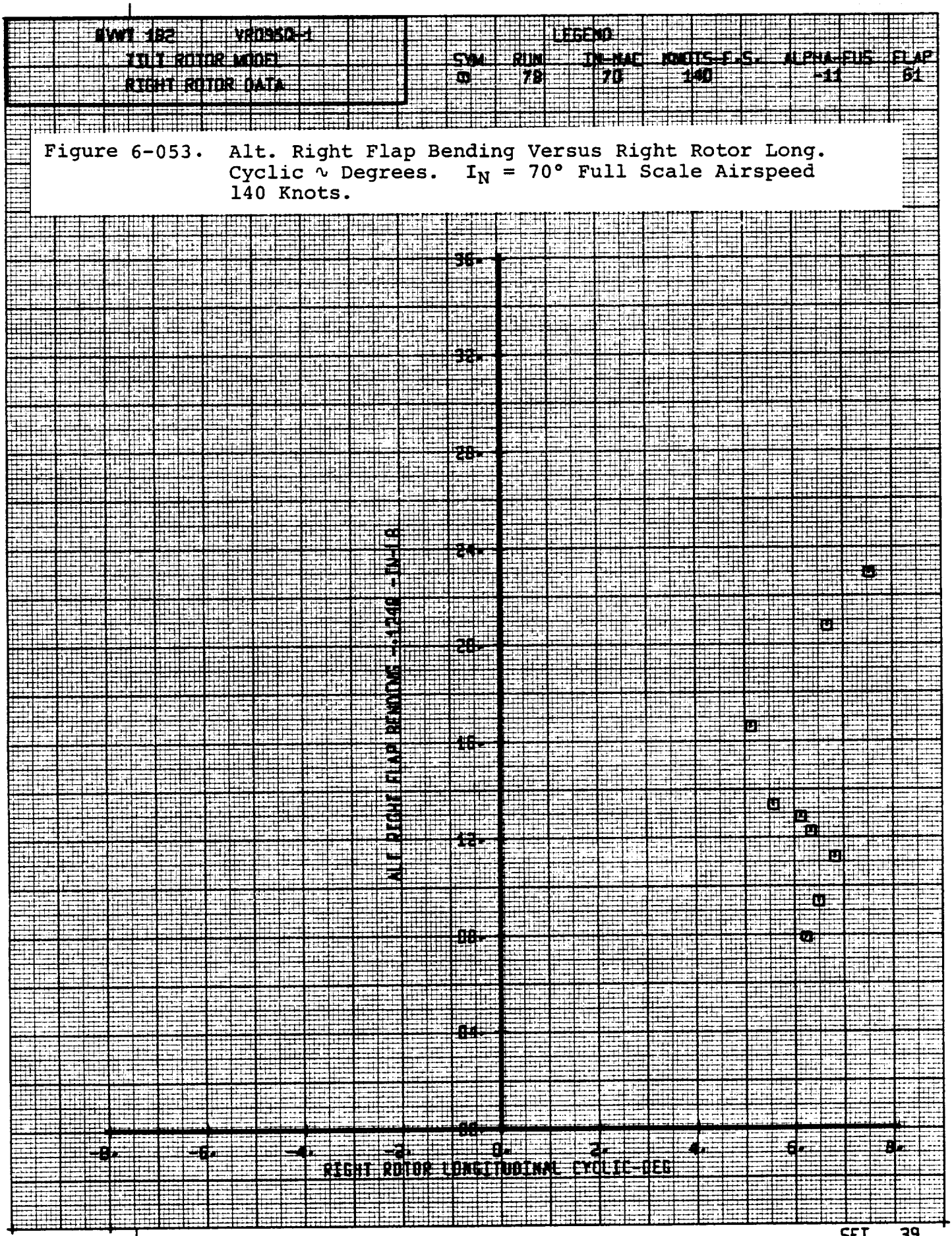


Figure 6-052. Alt. Right Chord Bending Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.



SET 39
BWT 182

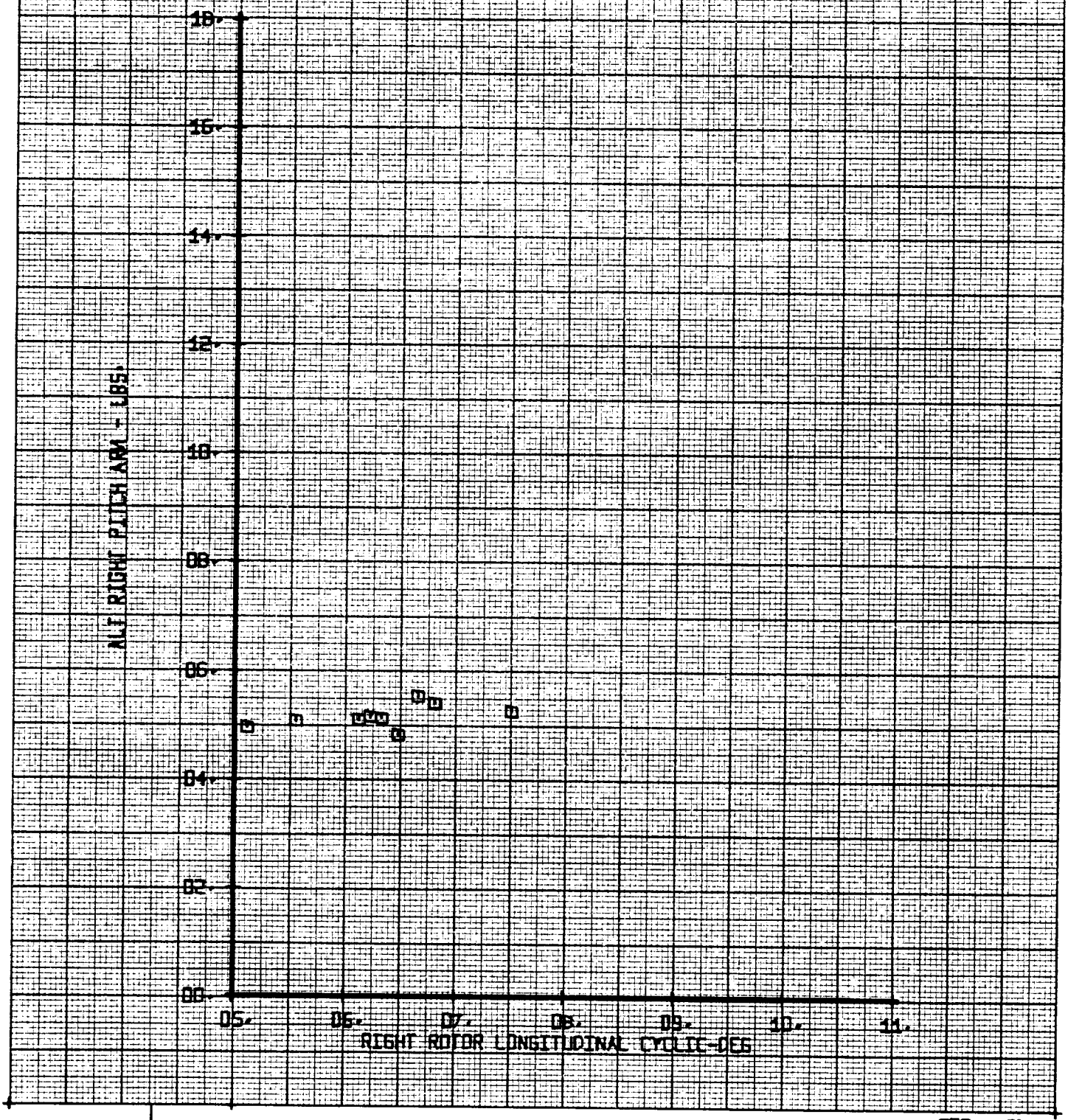
SET 39
BWT 182

Figure 6-053. Alt. Right Flap Bending Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

BVWT 182 VA0950-1
TILT ROTOR MODEL
RIGHT ROTOR DATA

LEGEND					
SYM	RUN	IN-NAC	KNOTS-F.S.	ALPHA-FUS	FLAP
⊡	78	70	140	-11	61

Figure 6-054. Alt. Right Pitch Link Load Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.



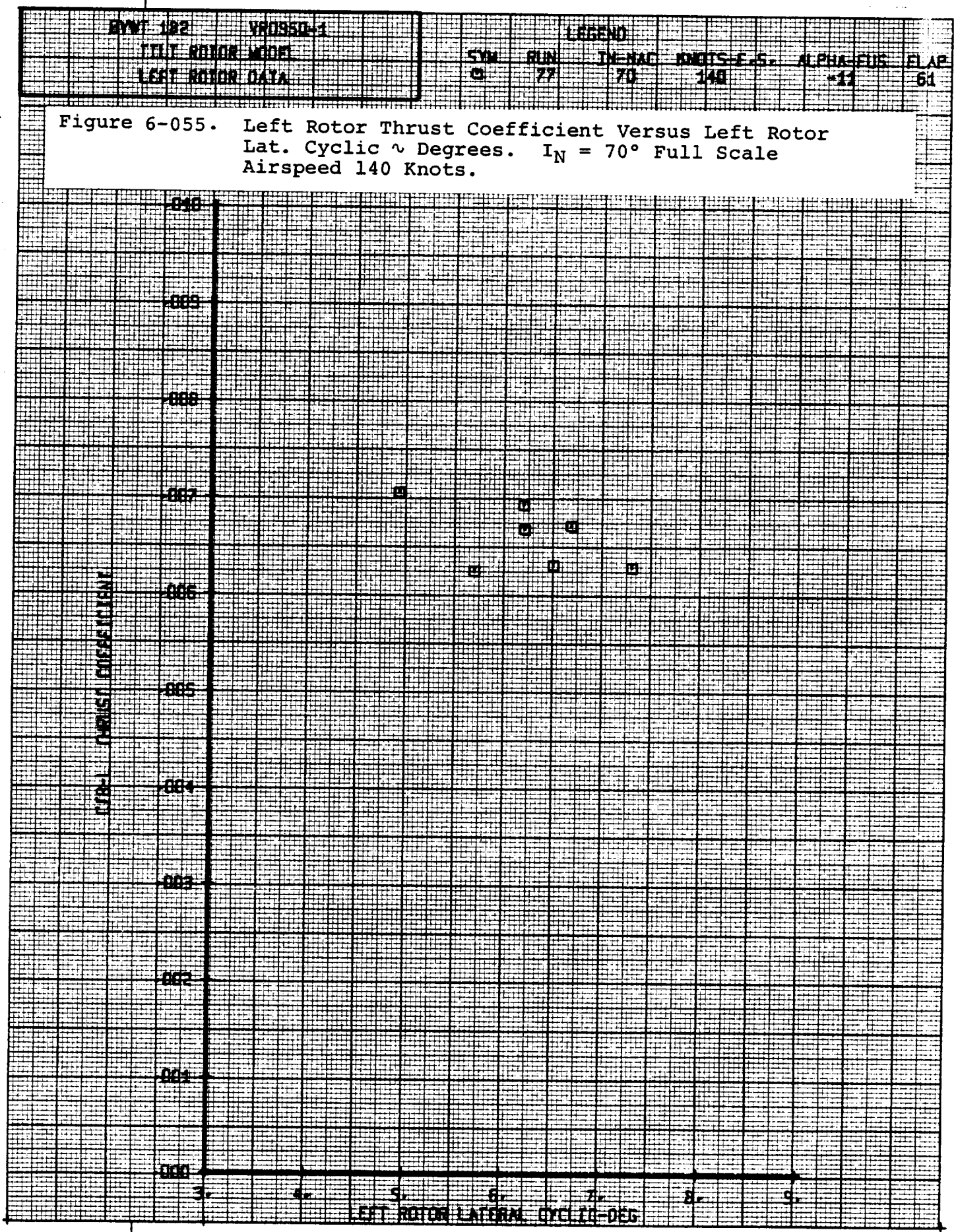


Figure 6-055. Left Rotor Thrust Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

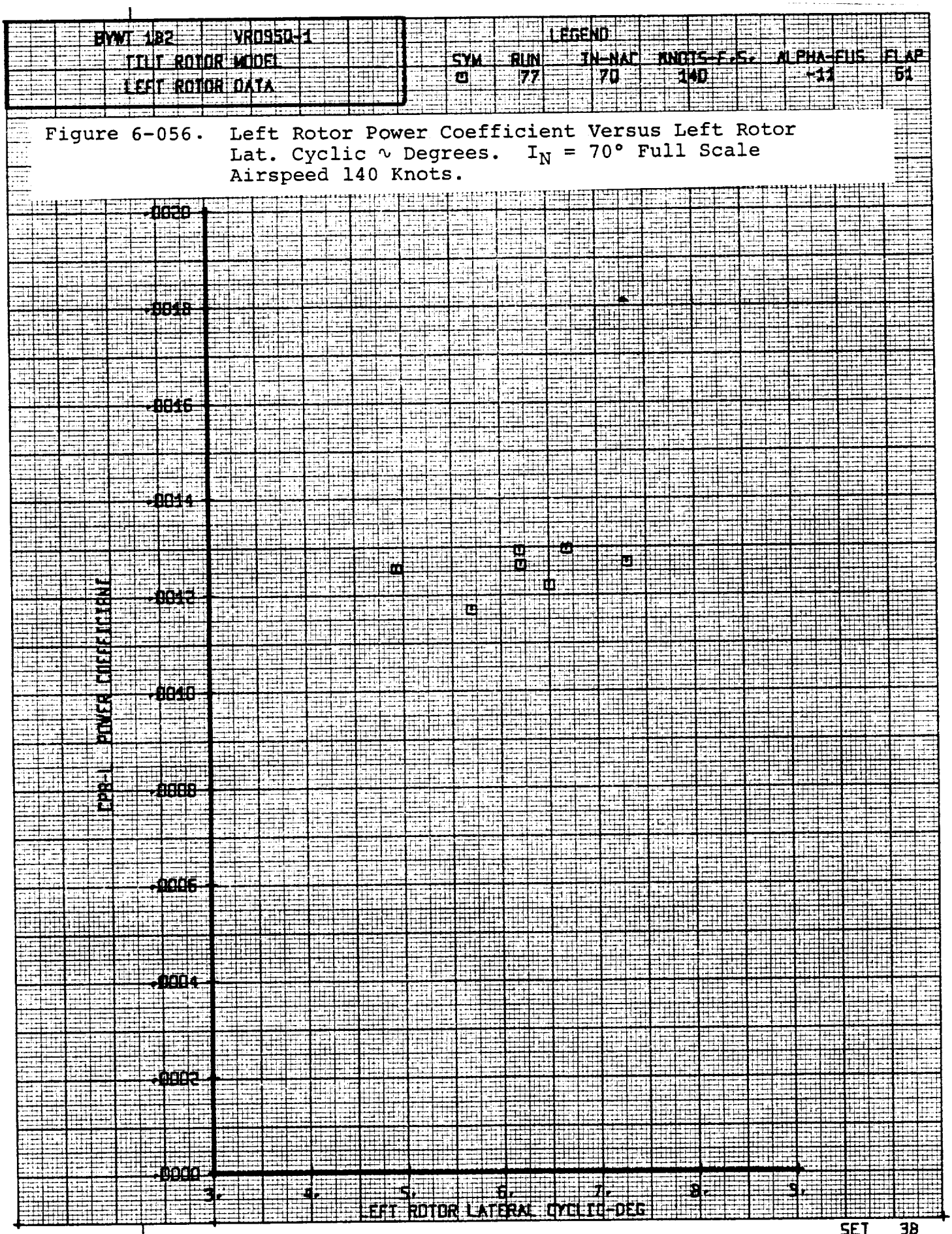


Figure 6-056. Left Rotor Power Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

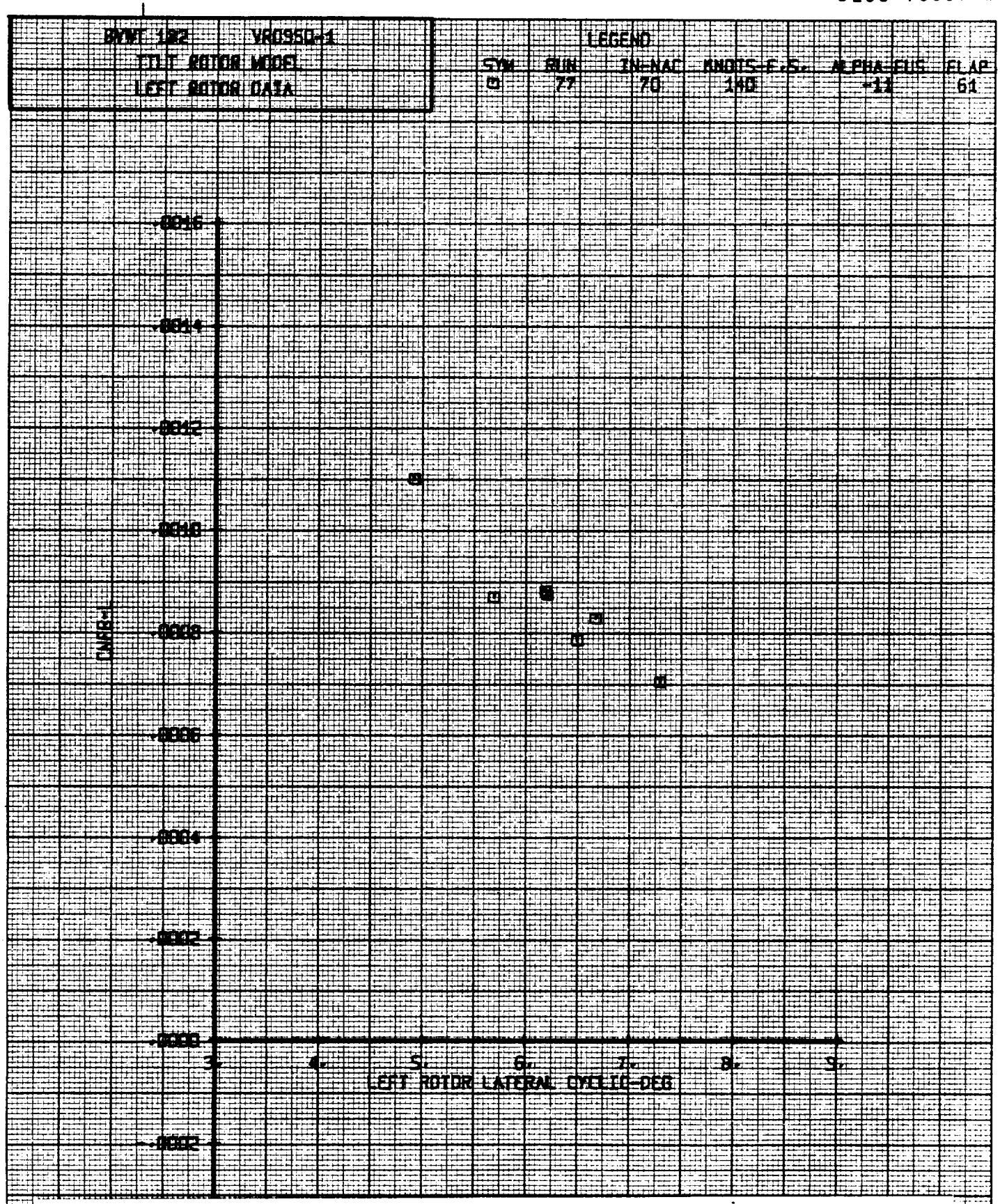


Figure 6-057. Left Rotor Normal Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

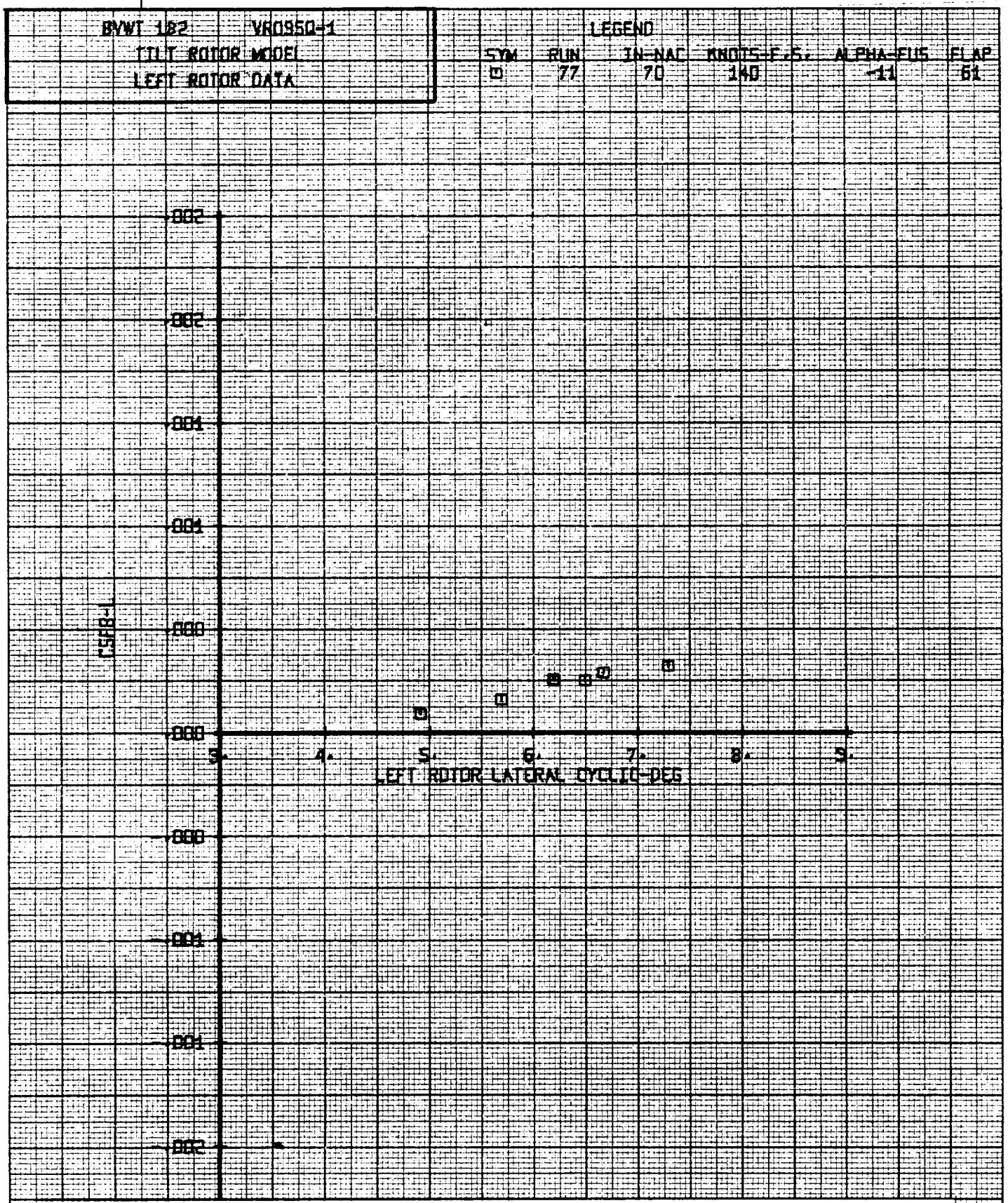


Figure 6-058. Left Rotor Side Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

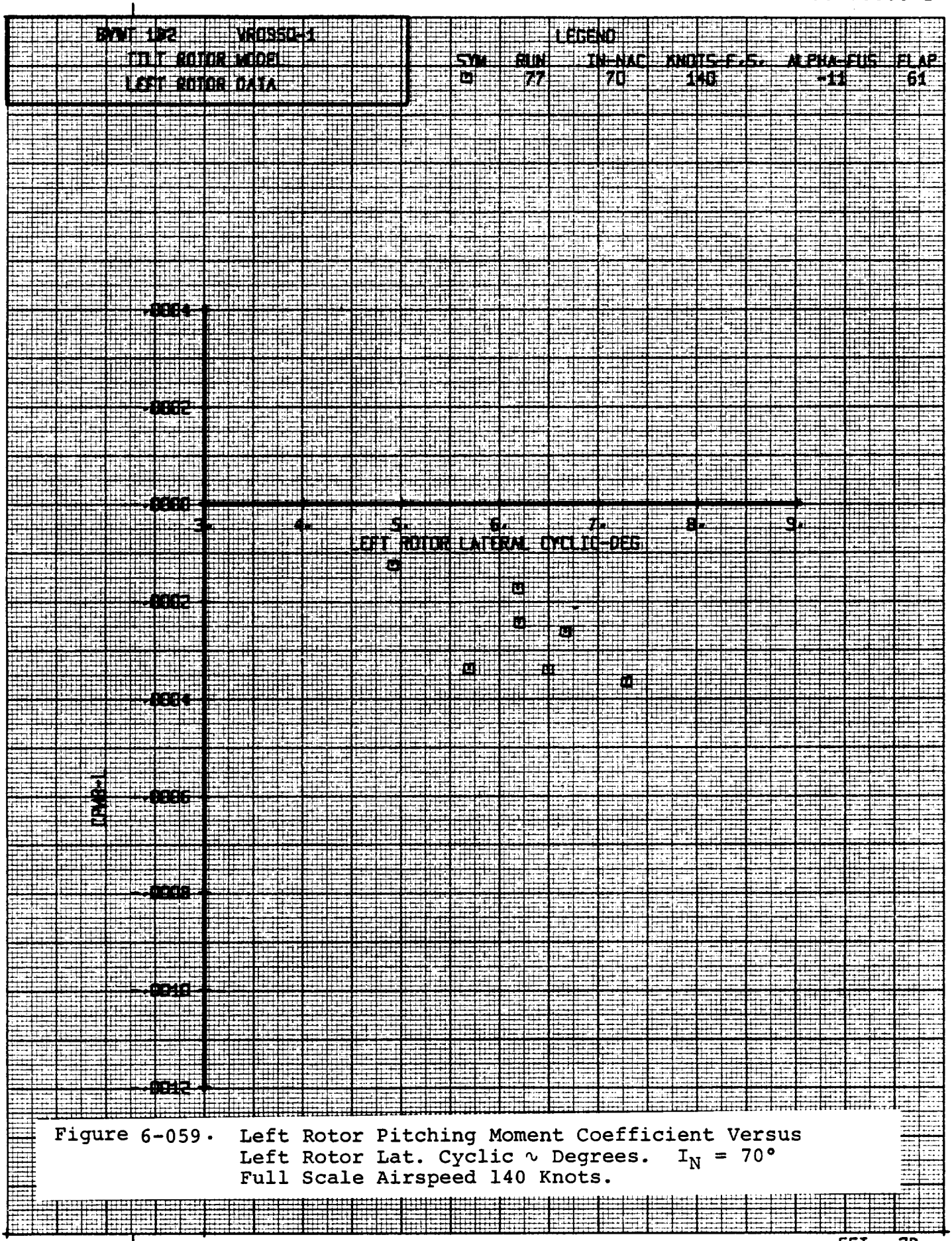


Figure 6-059. Left Rotor Pitching Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

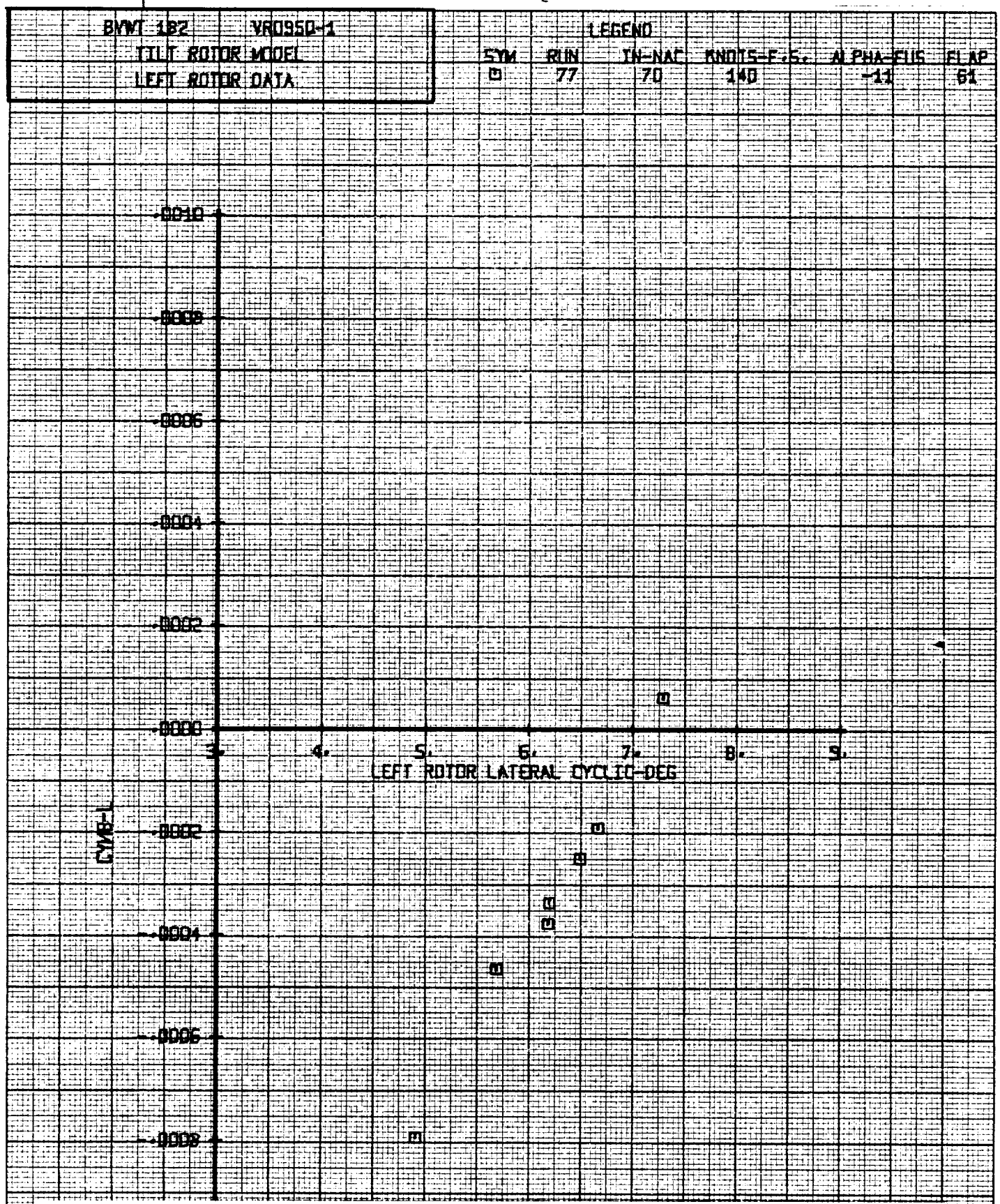


Figure 6-060. Left Rotor Yawing Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

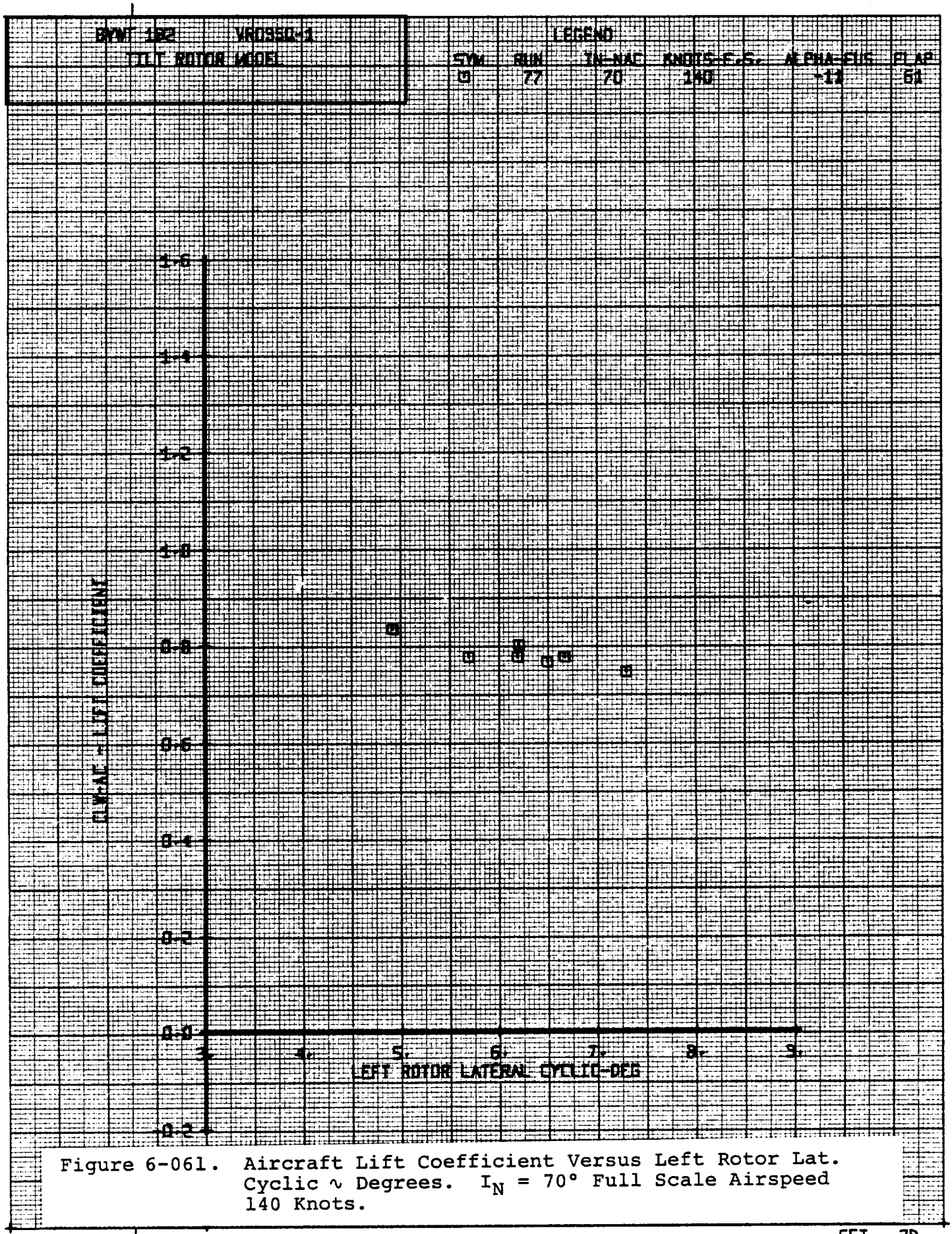


Figure 6-061. Aircraft Lift Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

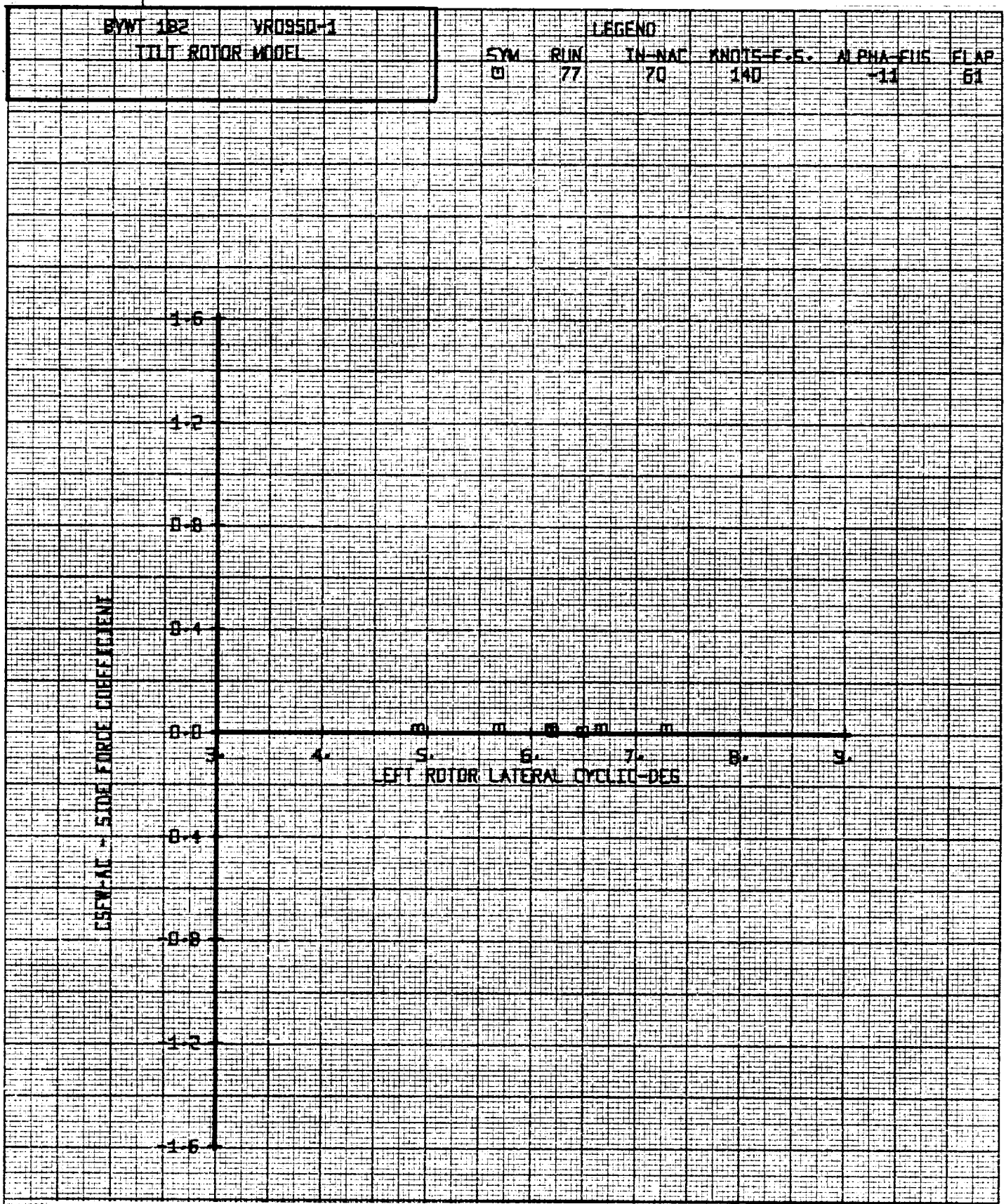


Figure 6-062. Aircraft Side Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

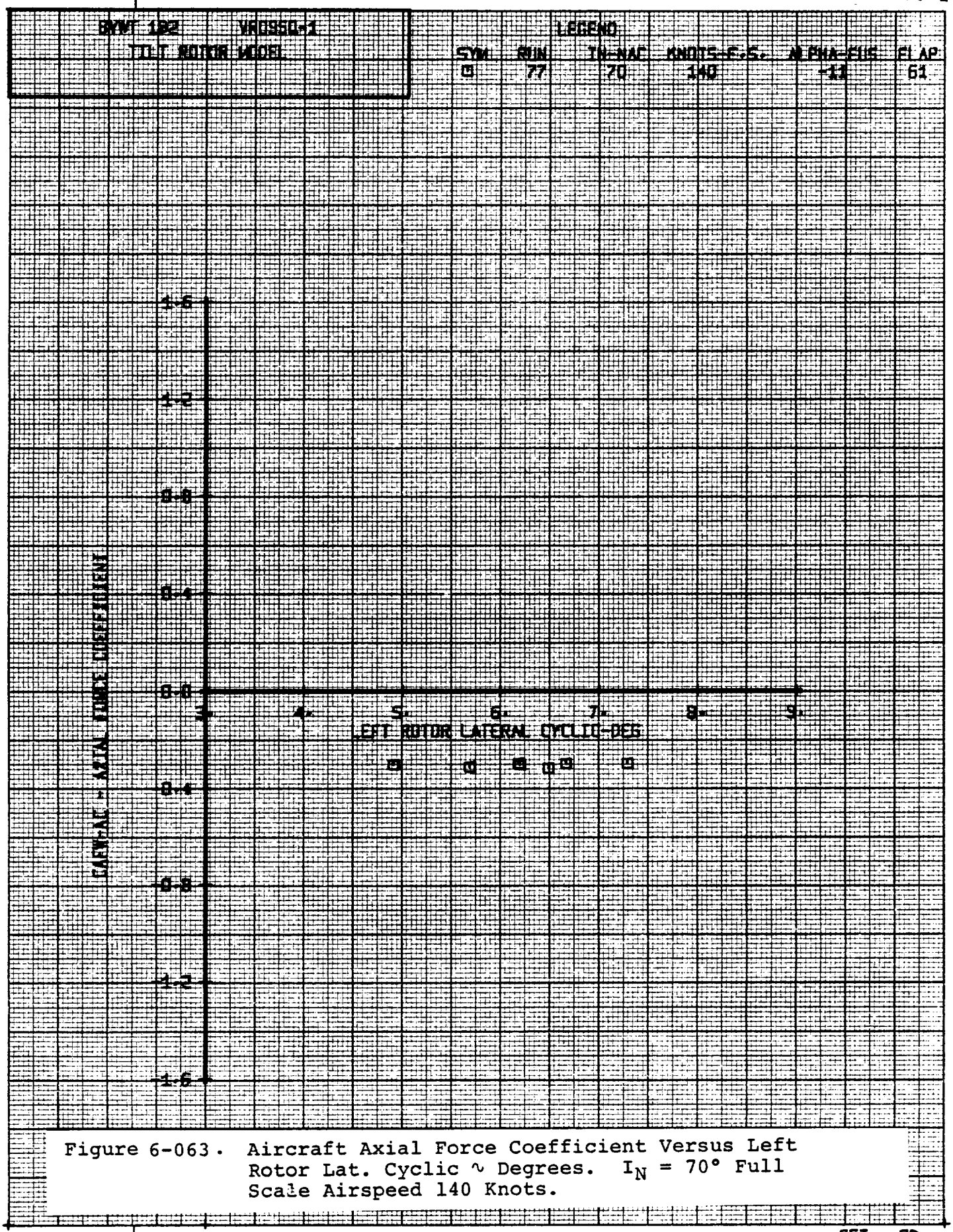


Figure 6-063. Aircraft Axial Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

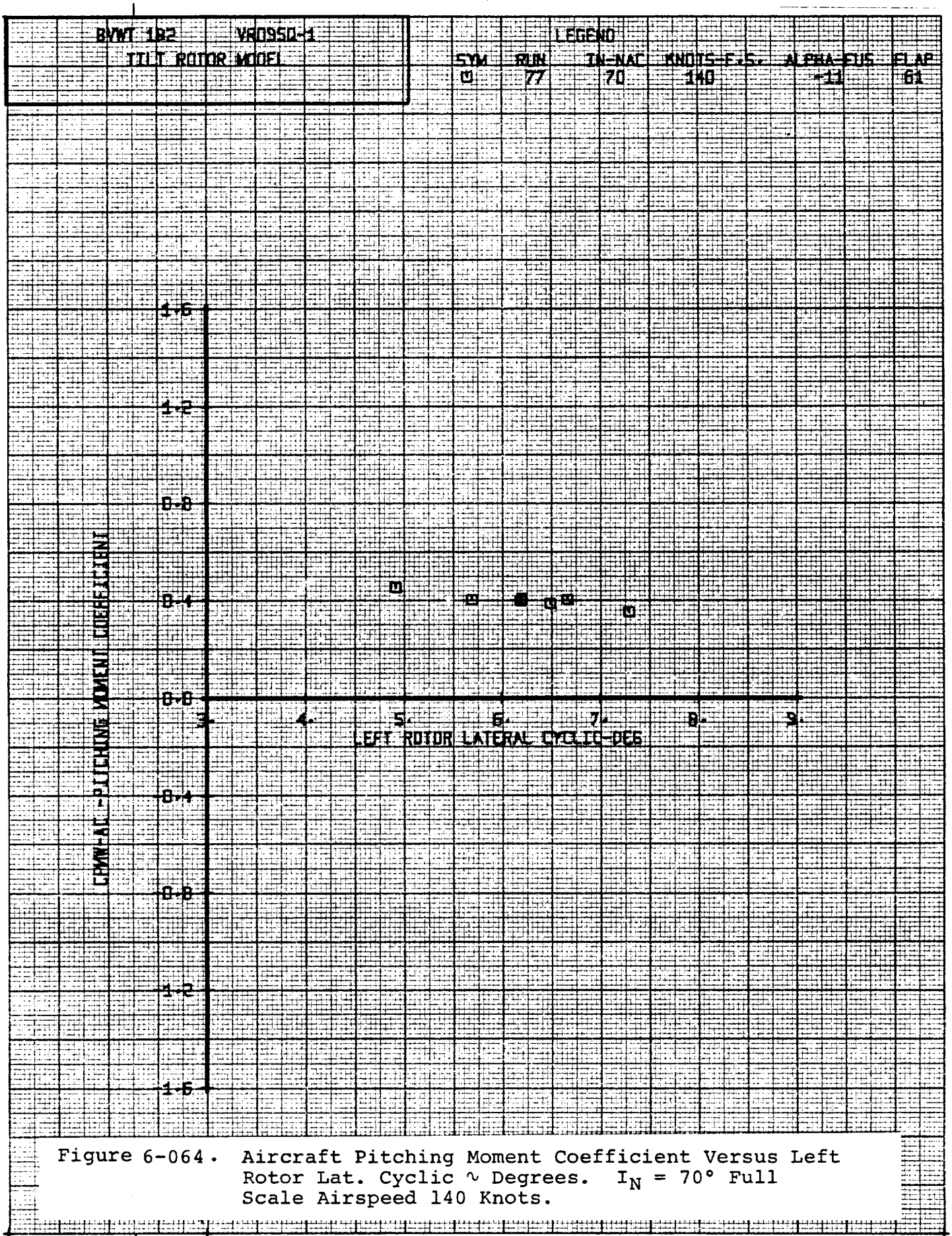


Figure 6-064. Aircraft Pitching Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

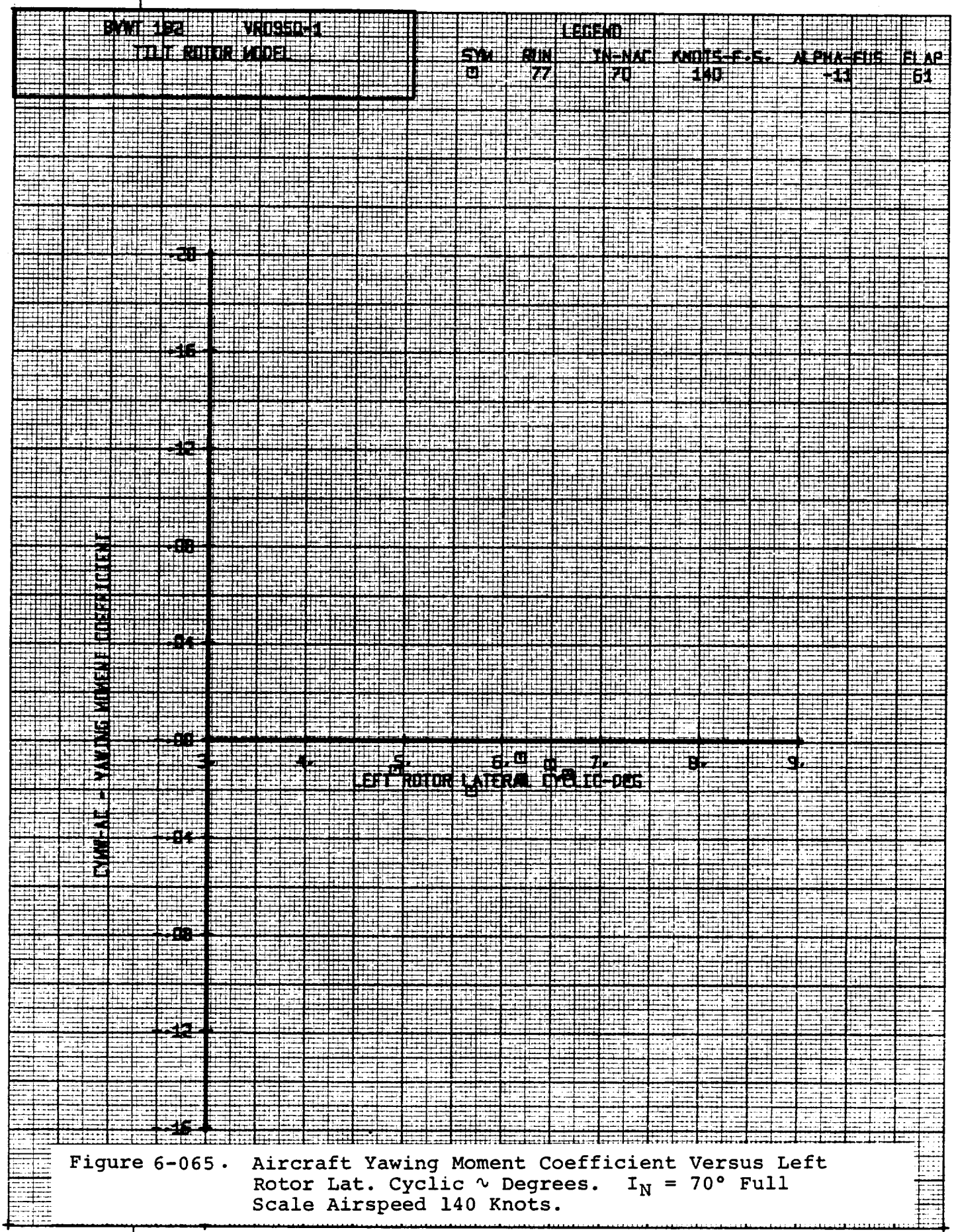


Figure 6-065. Aircraft Yawing Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

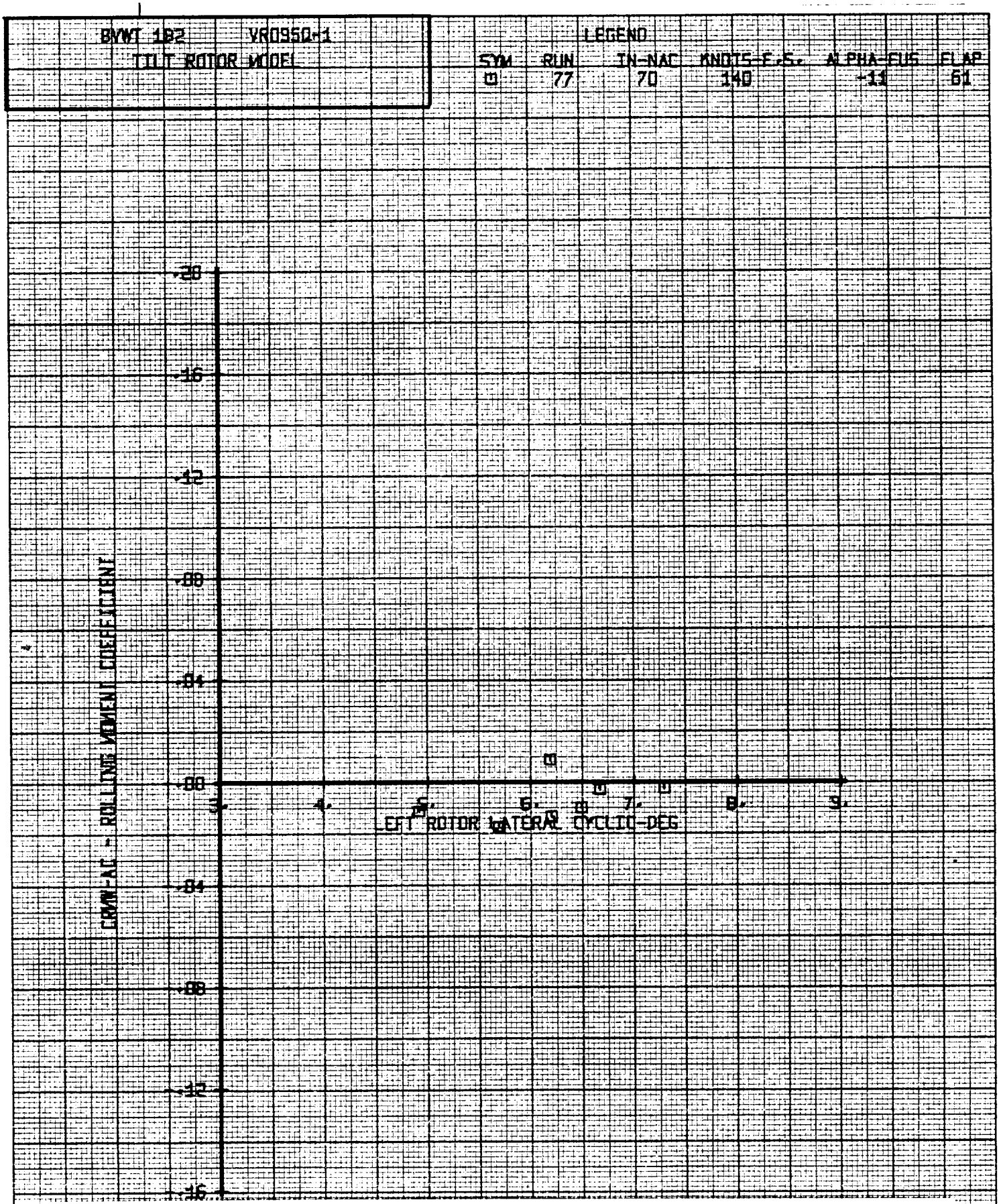


Figure 6-066. Aircraft Rolling Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

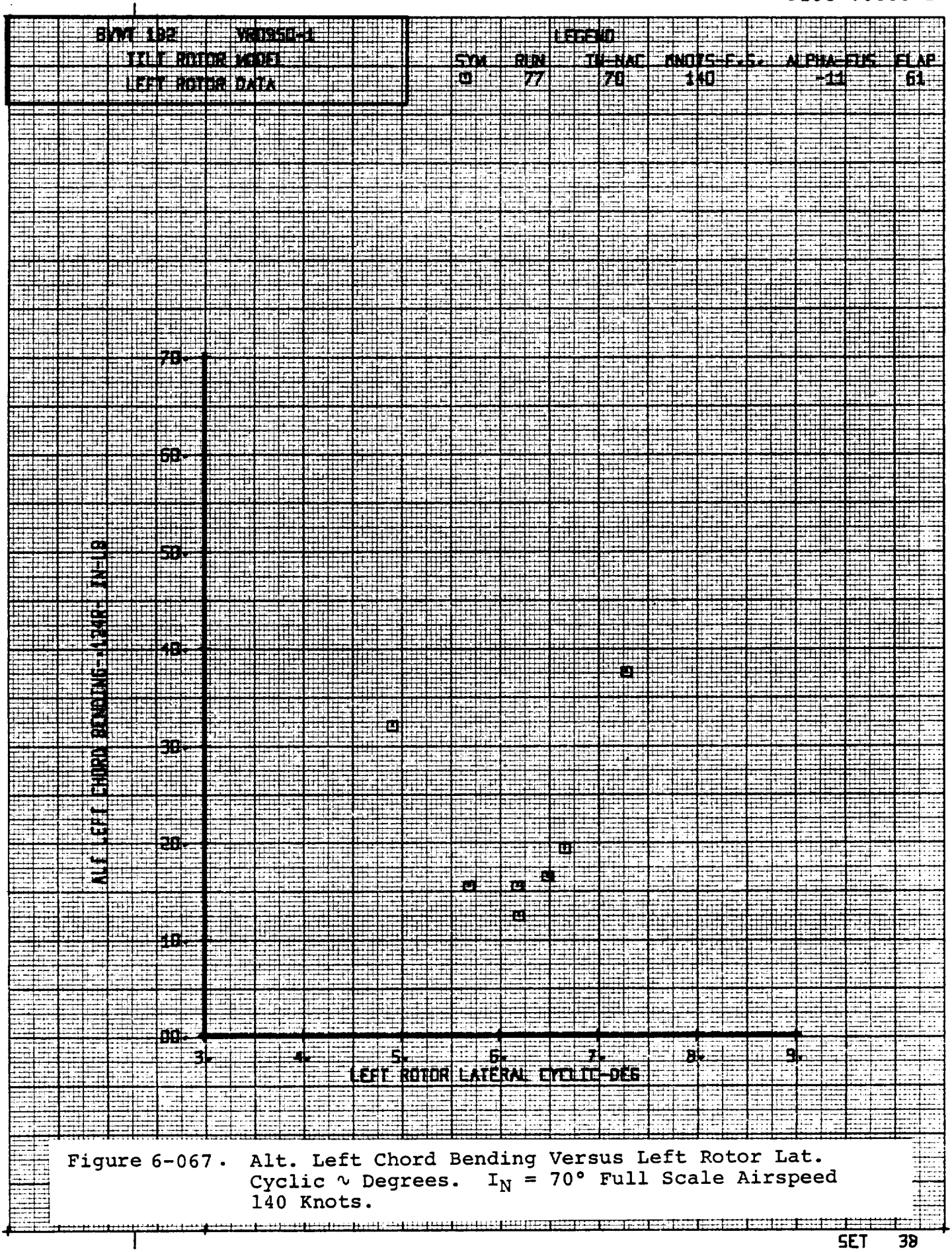


Figure 6-067. Alt. Left Chord Bending Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

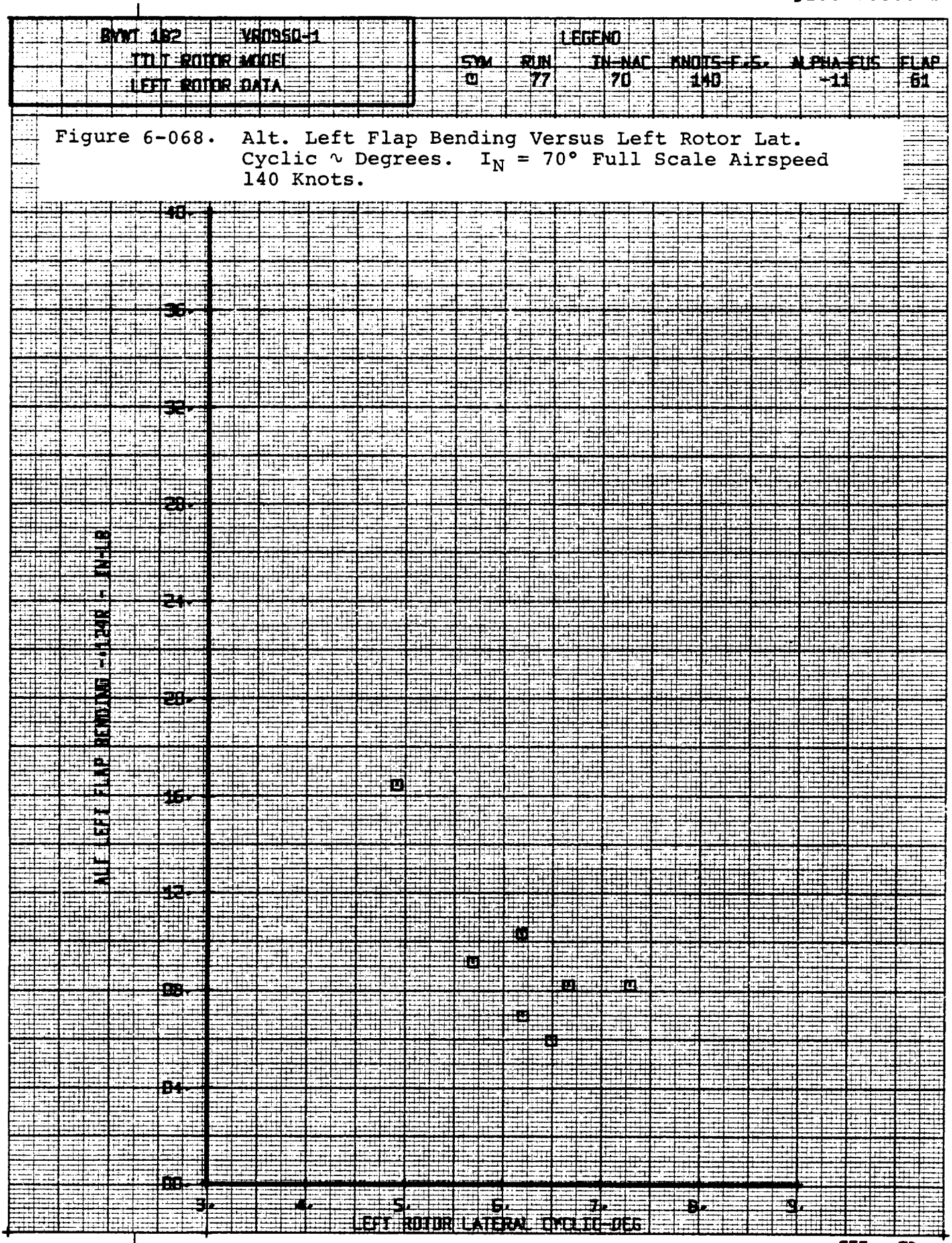


Figure 6-068. Alt. Left Flap Bending Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

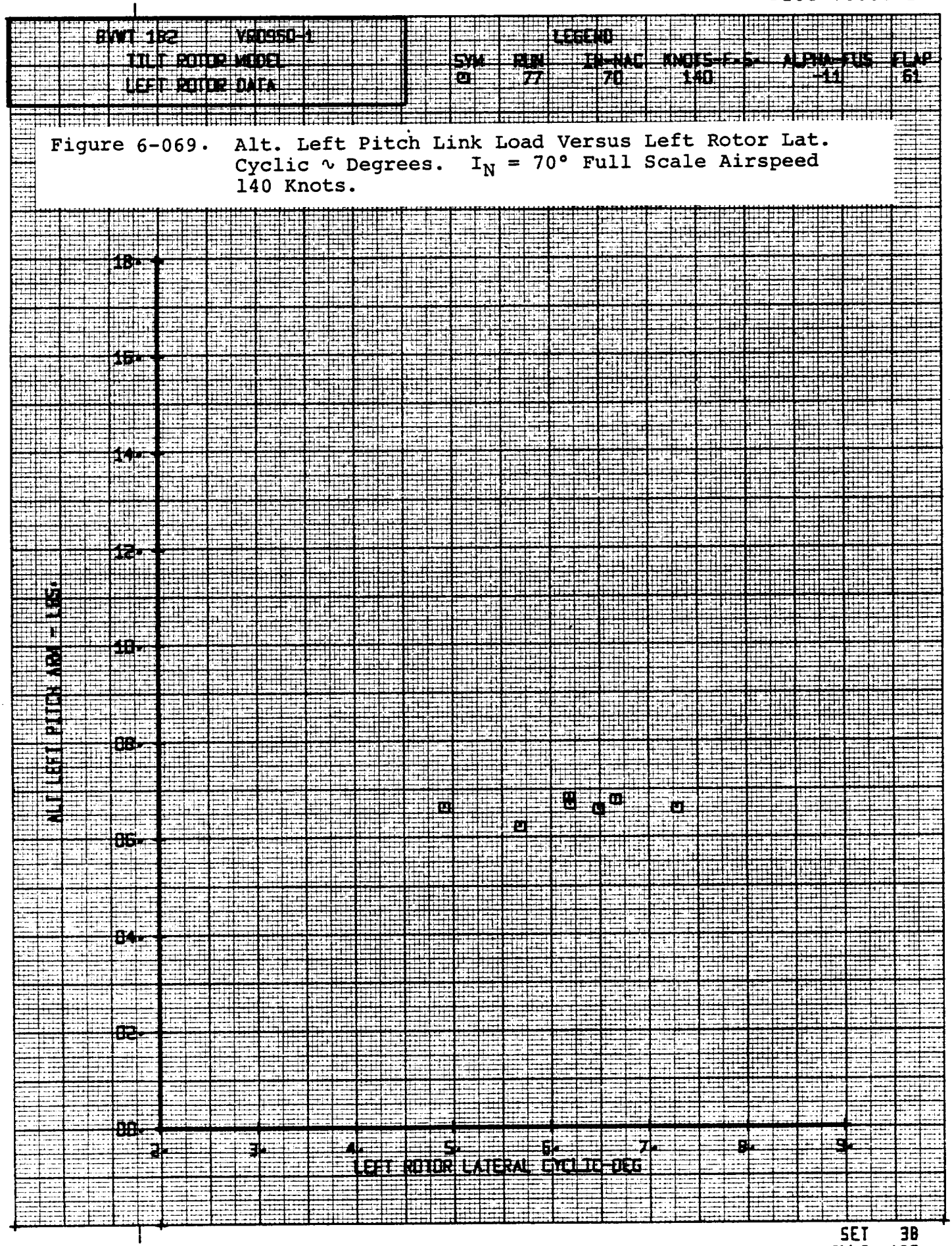


Figure 6-069. Alt. Left Pitch Link Load Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

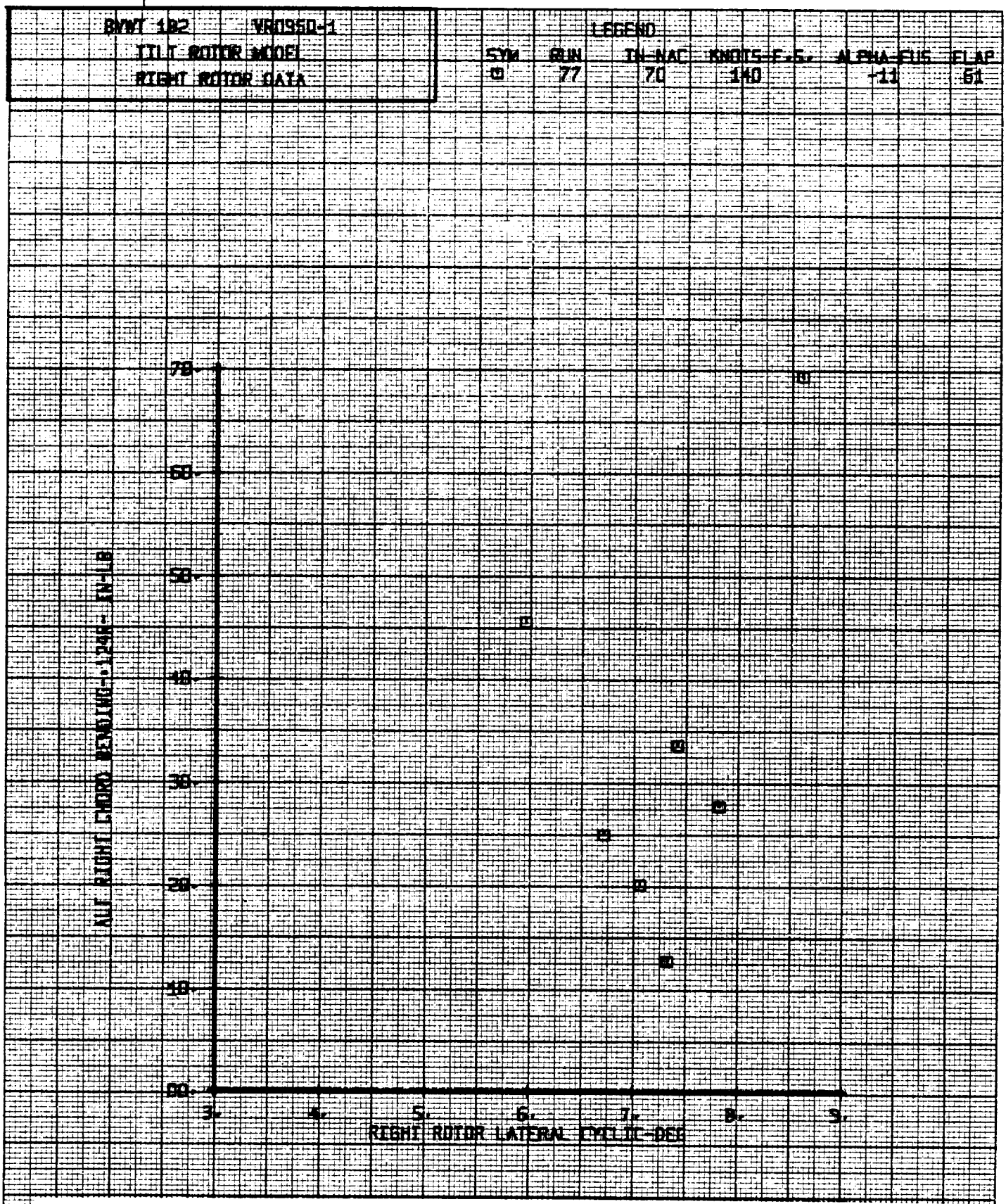


Figure 6-070. Alt. Right Chord Bending Versus Right Rotor Lat. Cyclic ∿ Degrees, I_N = 70° Full Scale Airspeed 140 Knots.

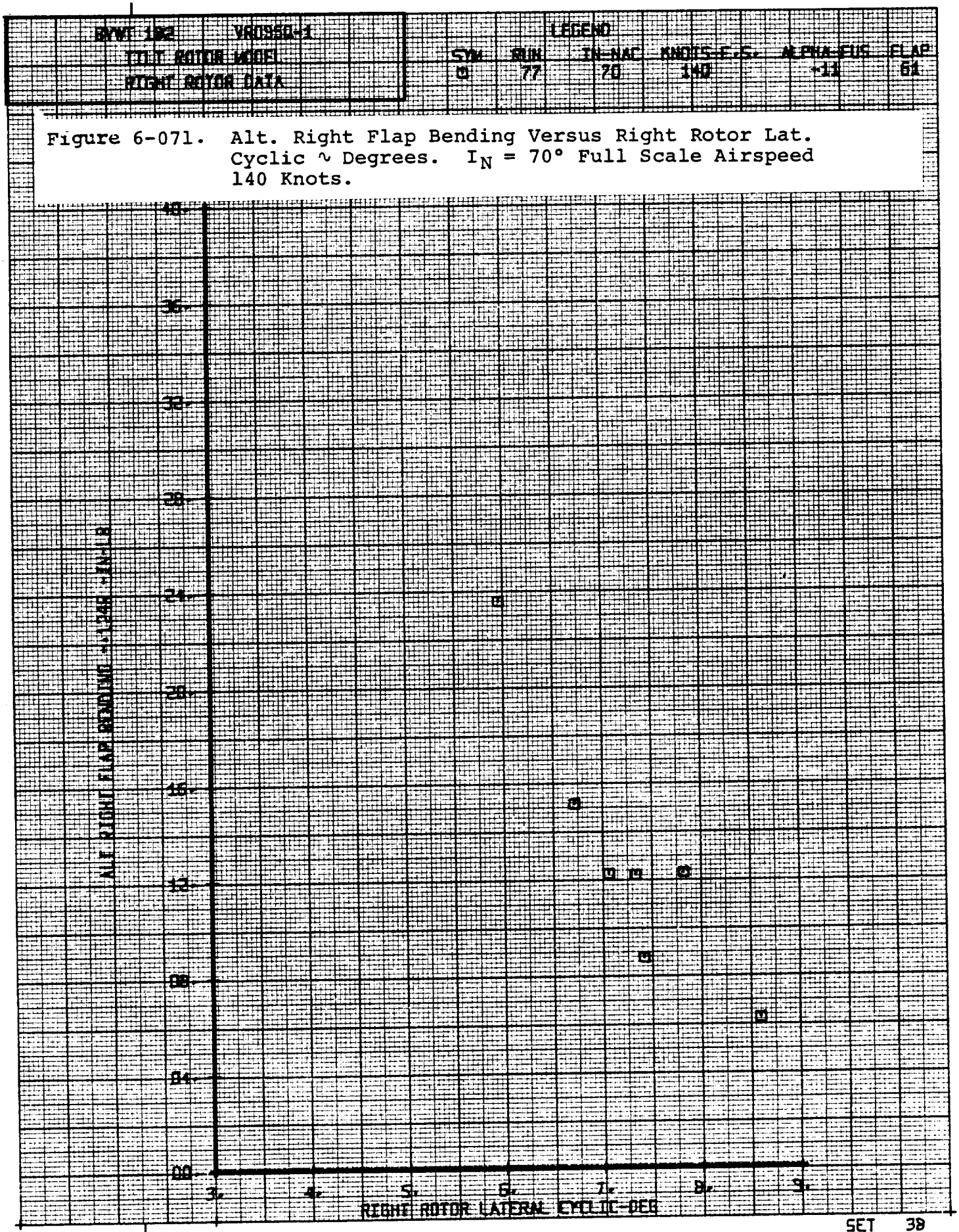


Figure 6-071. Alt. Right Flap Bending Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

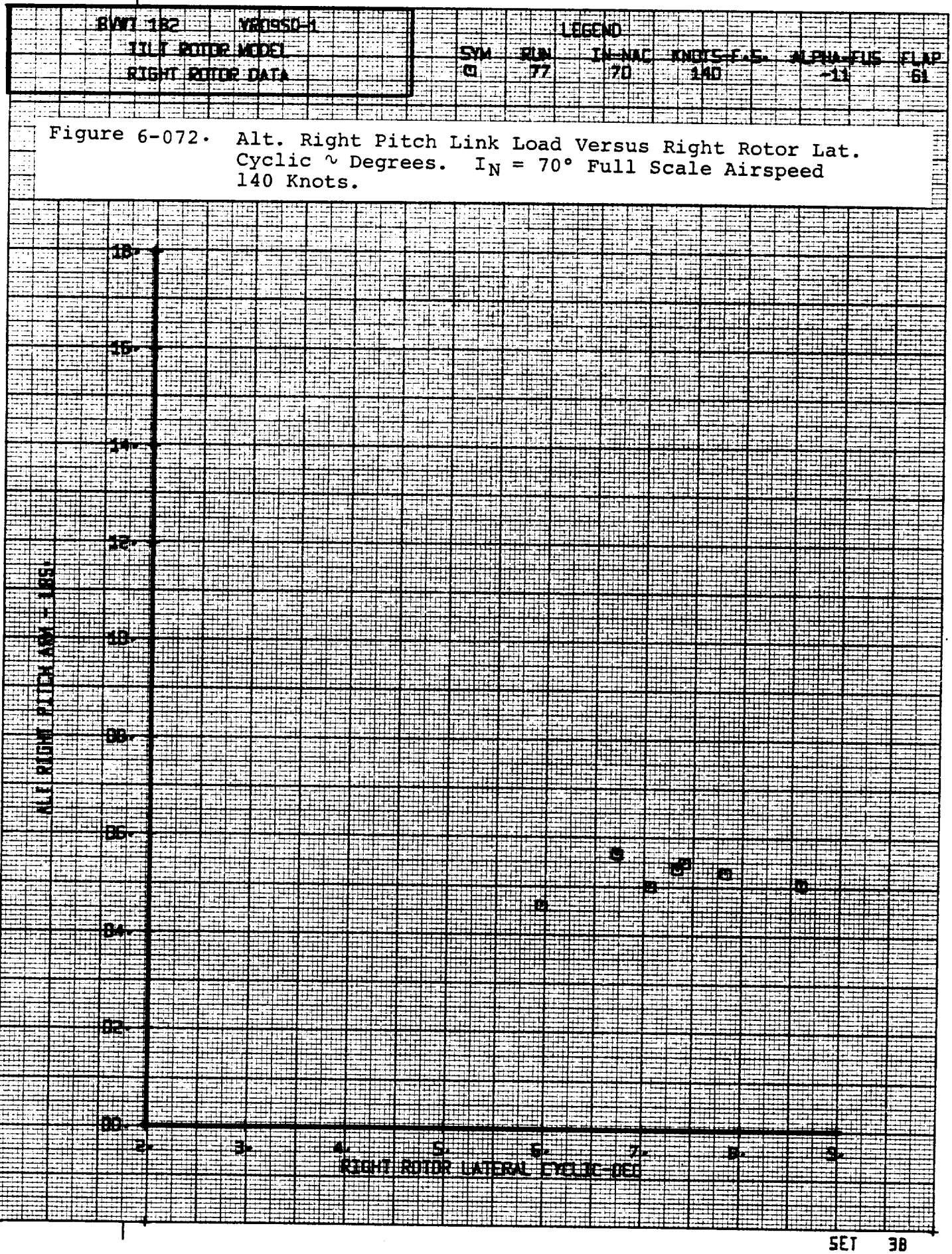


Figure 6-072. Alt. Right Pitch Link Load Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

3B
182

SET 3B
BVWT 182

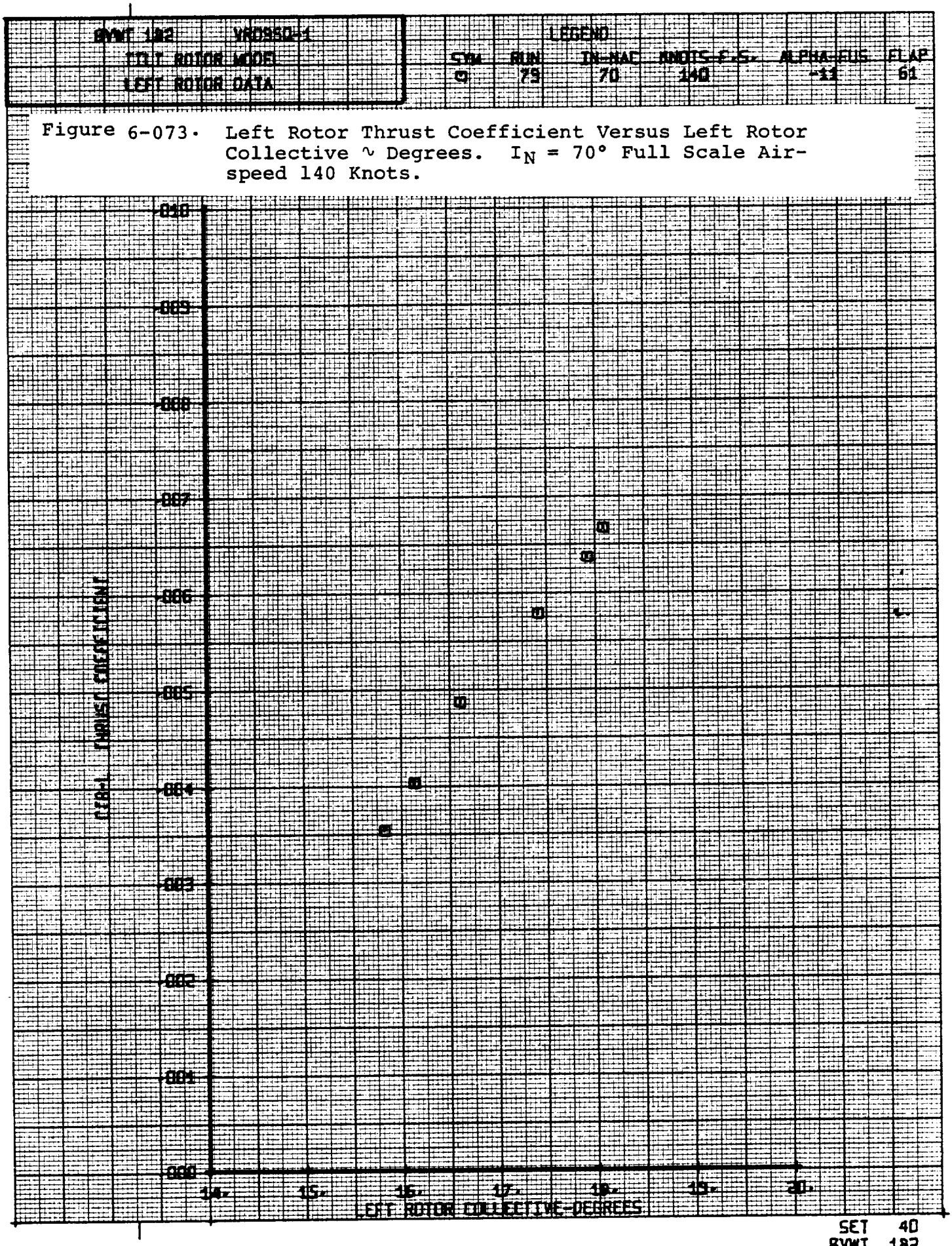


Figure 6-073. Left Rotor Thrust Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

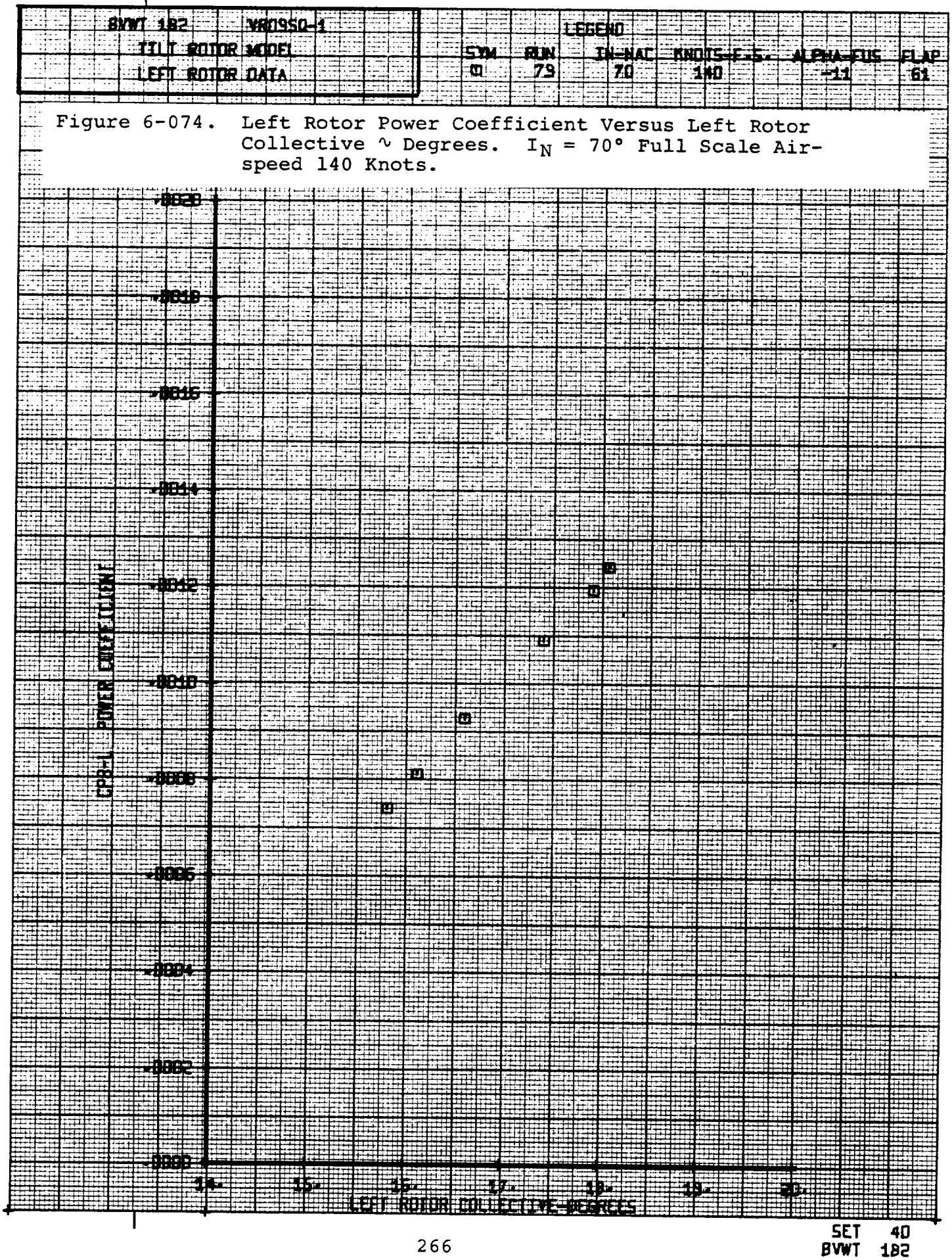


Figure 6-074. Left Rotor Power Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

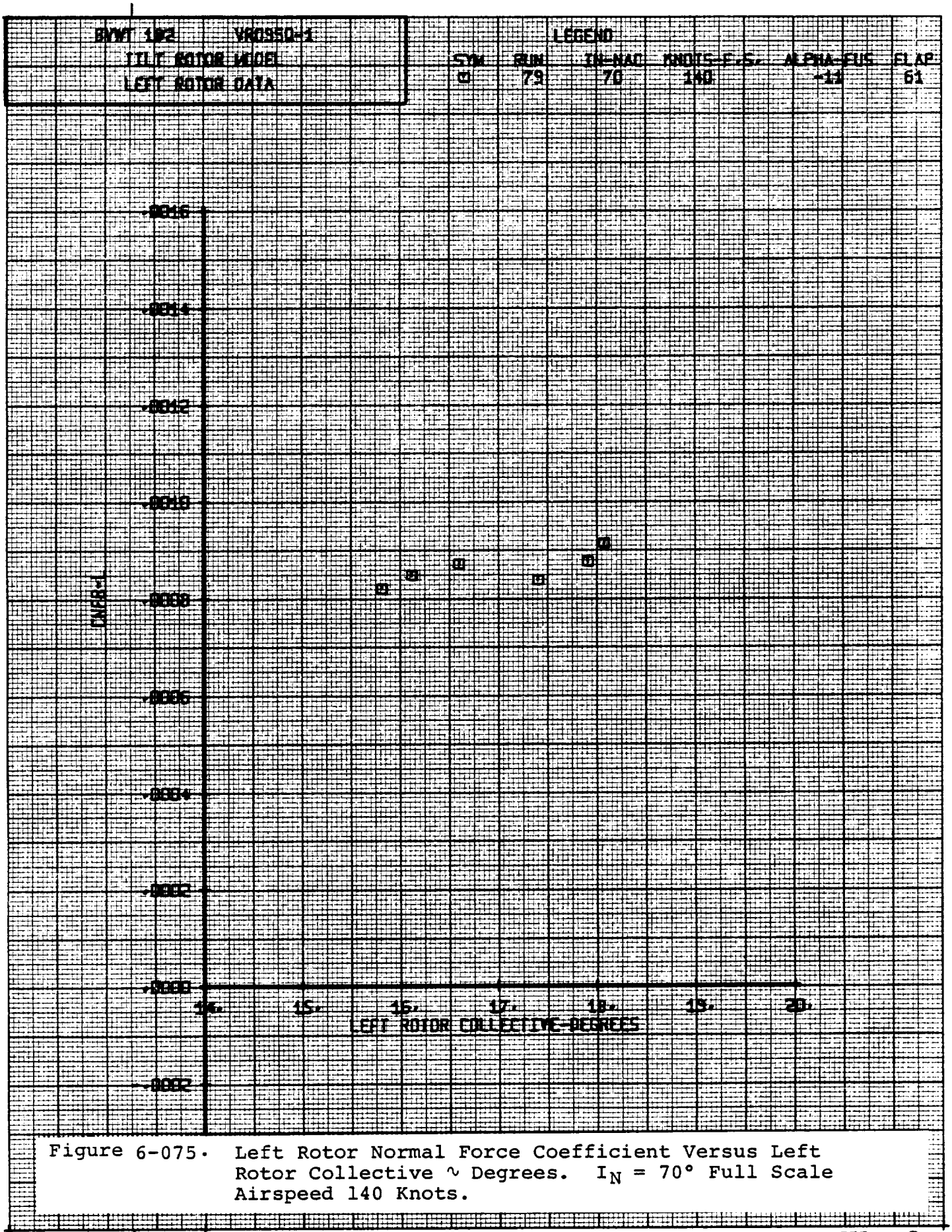


Figure 6-075. Left Rotor Normal Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

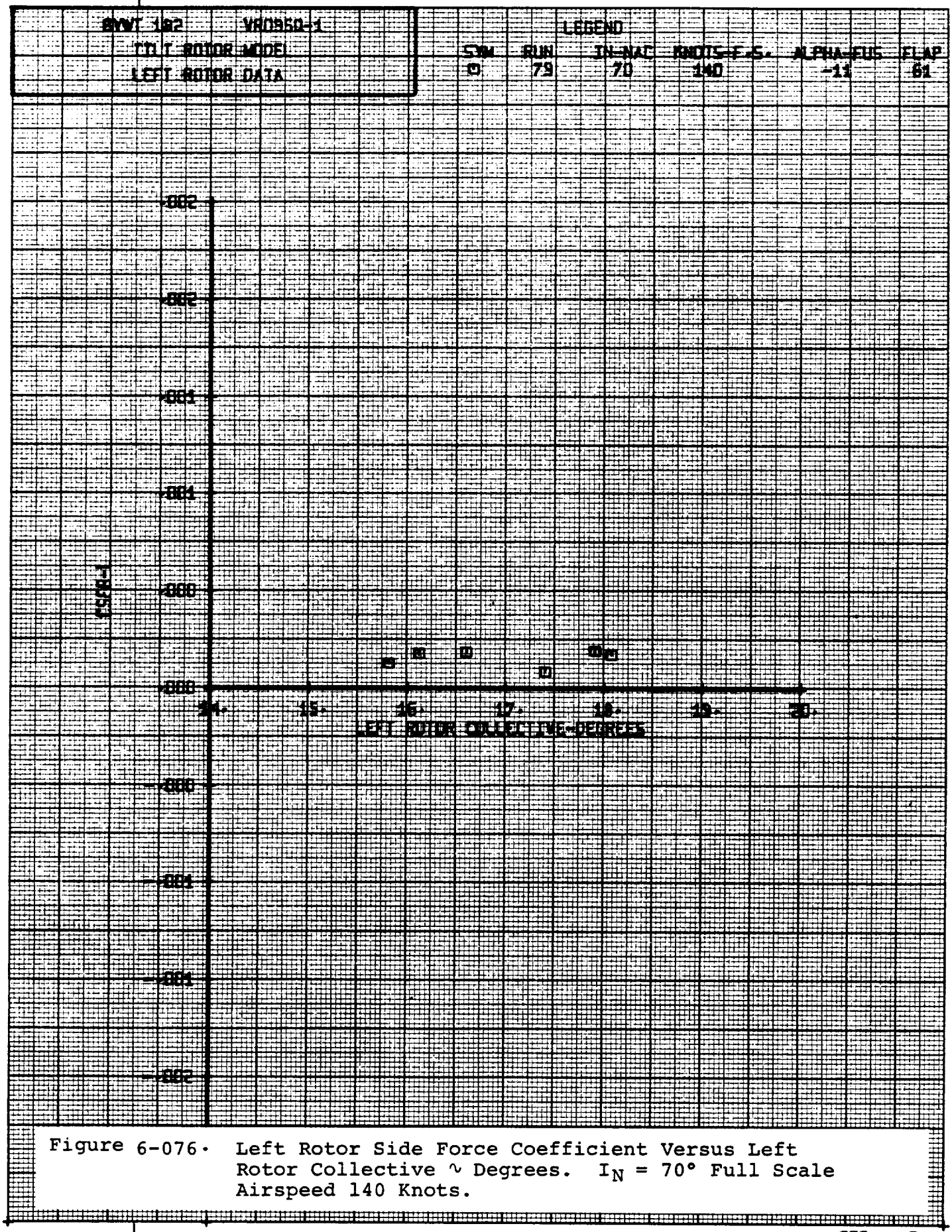


Figure 6-076. Left Rotor Side Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

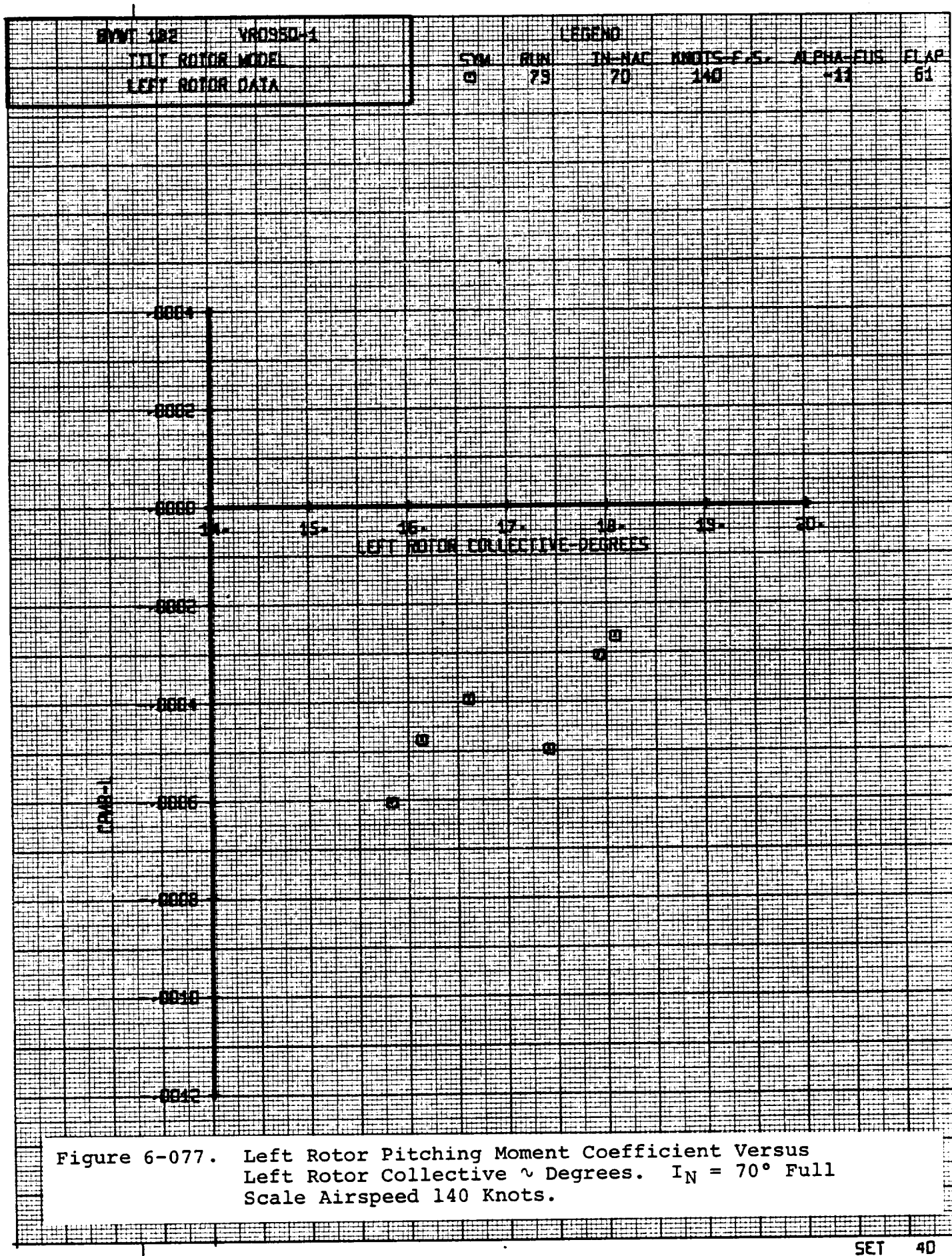


Figure 6-077. Left Rotor Pitching Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

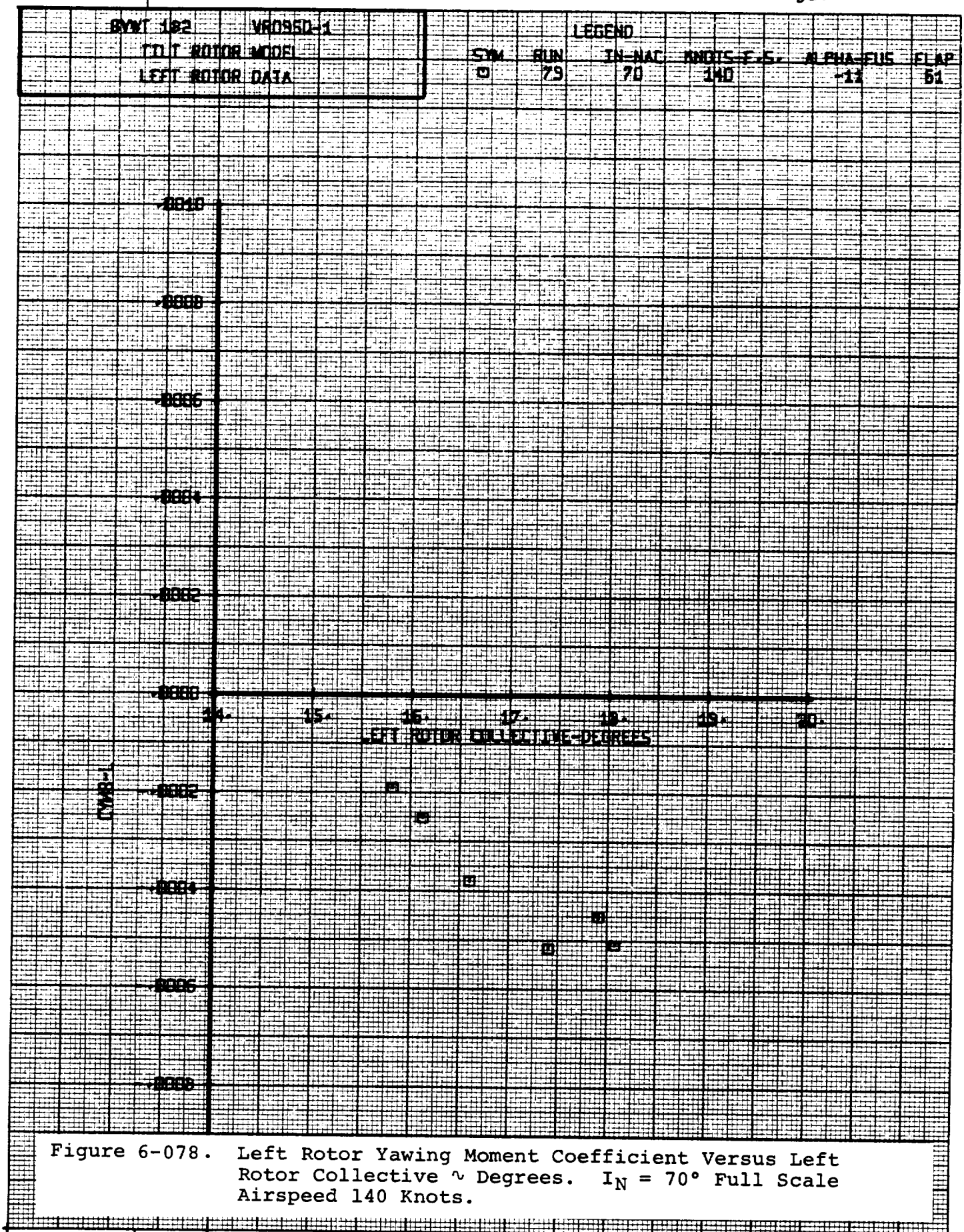


Figure 6-078. Left Rotor Yawing Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

4D
182

SET 4D
BVWT 182

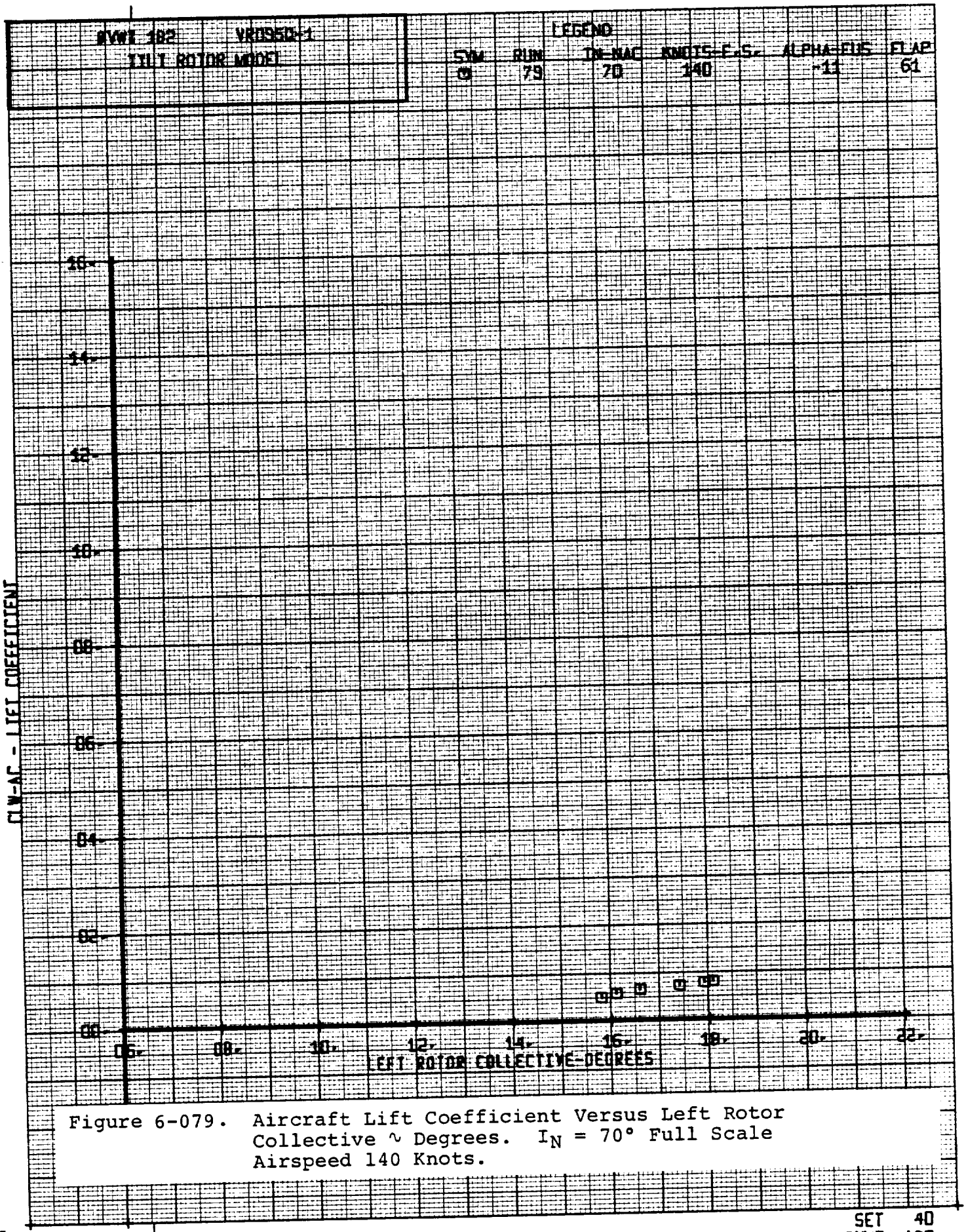


Figure 6-079. Aircraft Lift Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

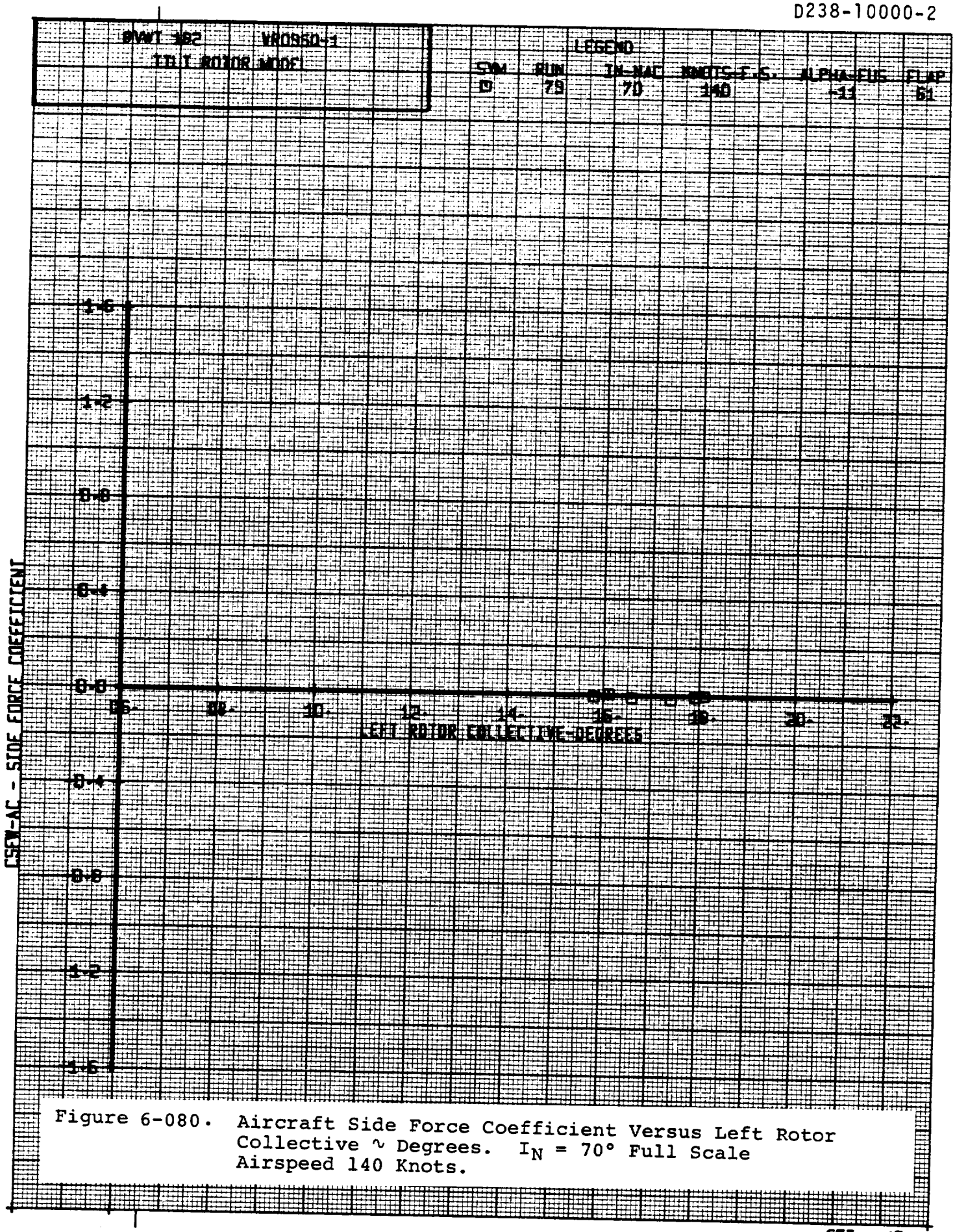


Figure 6-080. Aircraft Side Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

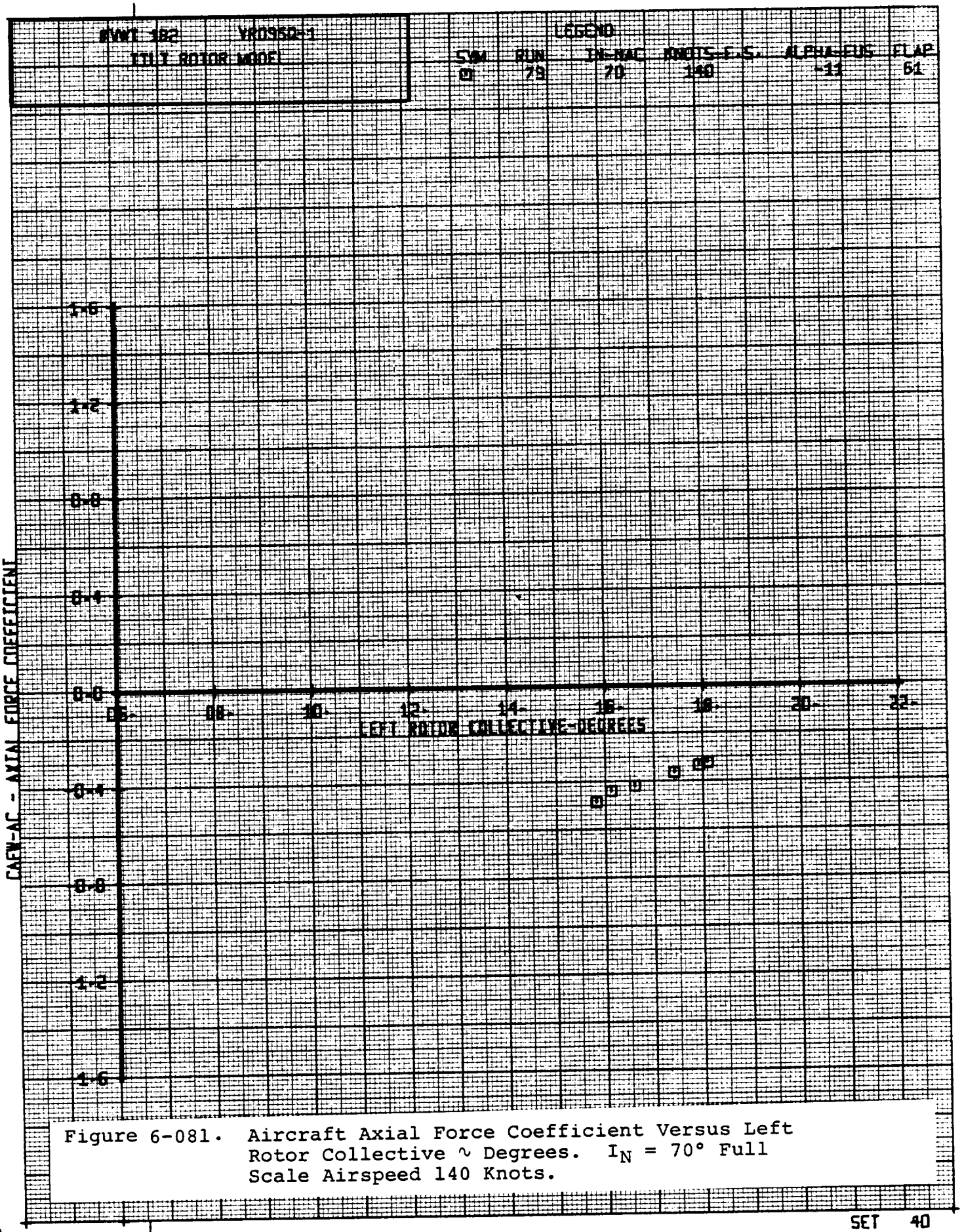


Figure 6-081. Aircraft Axial Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

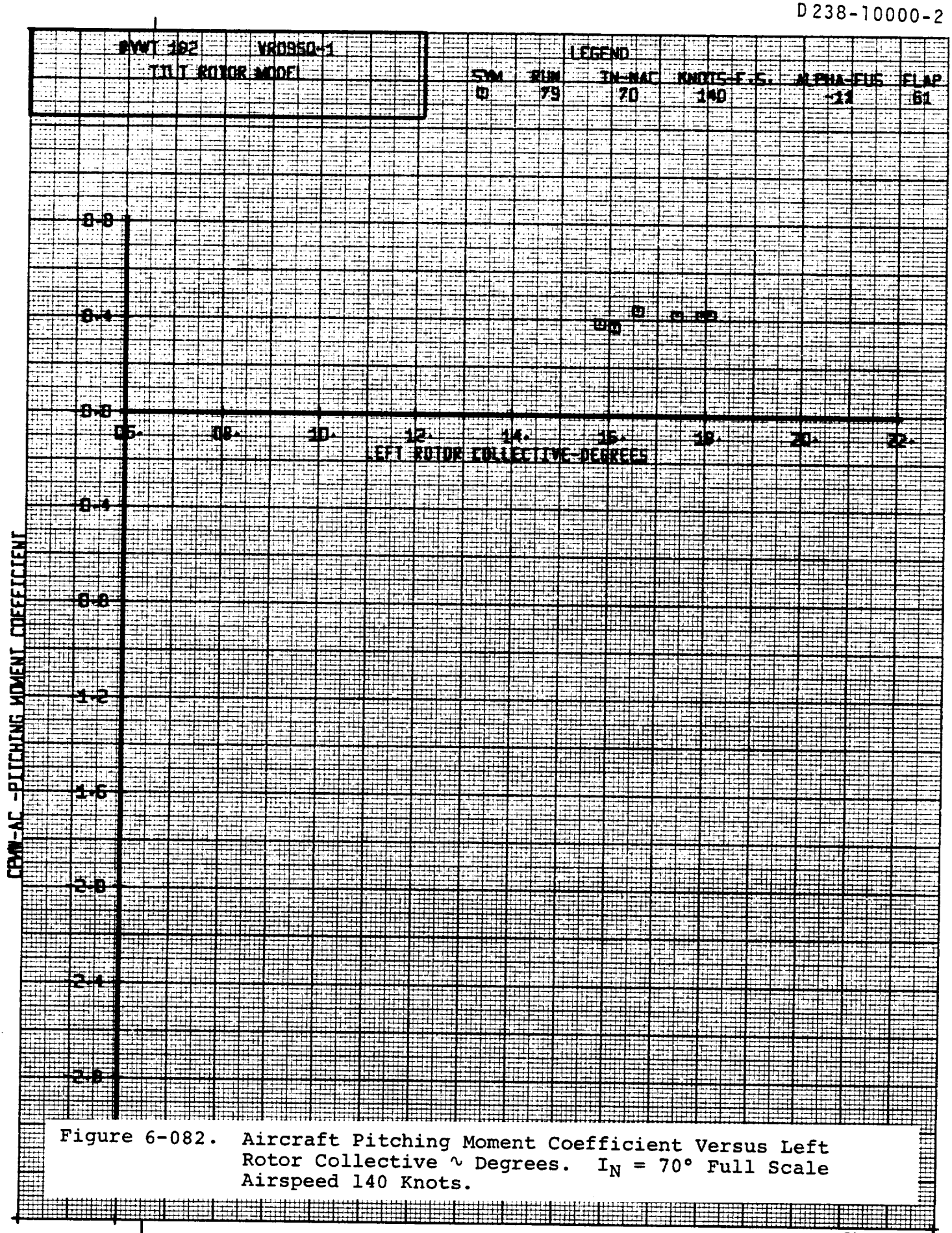


Figure 6-082. Aircraft Pitching Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

40
182

SET 40
BWT 182

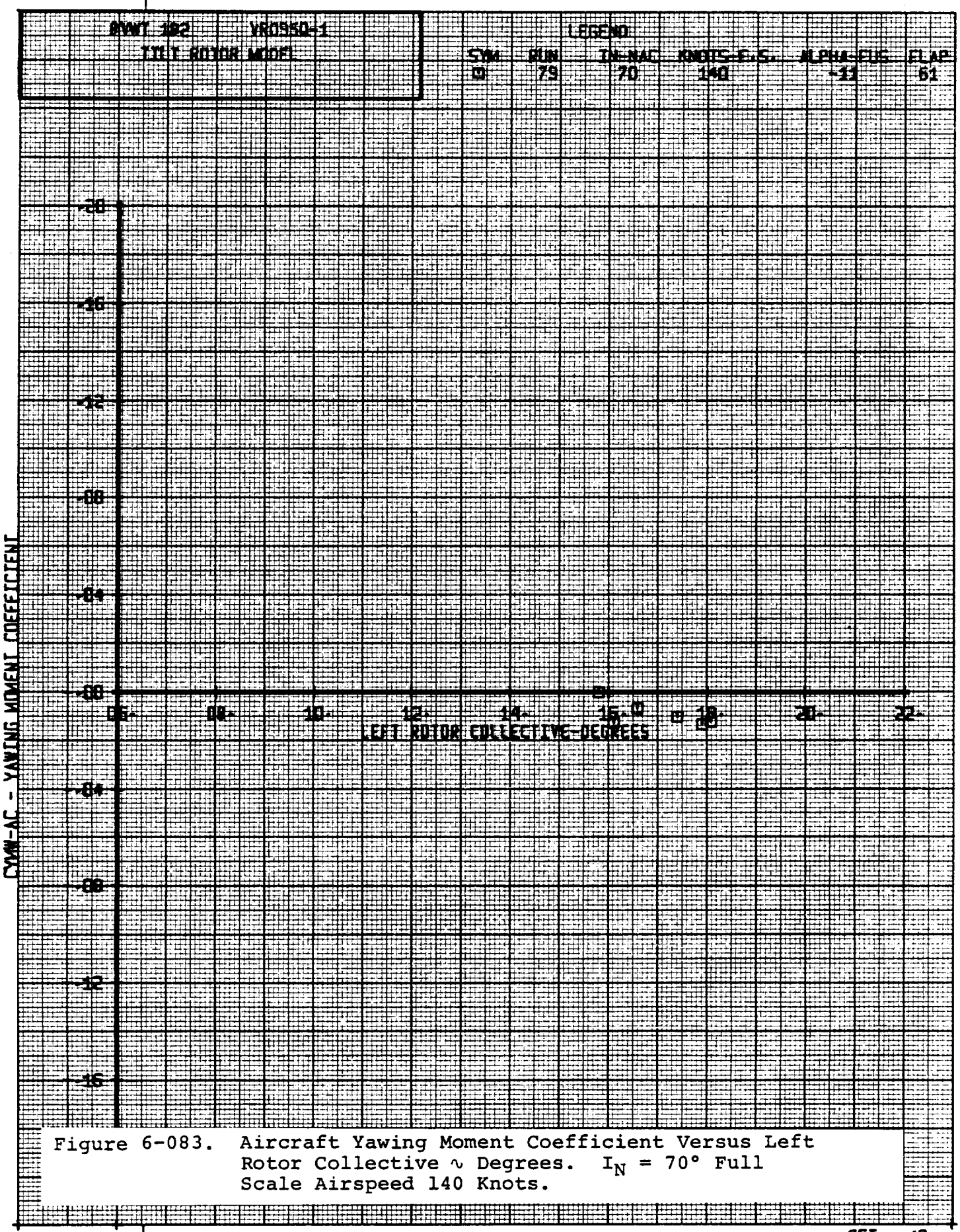


Figure 6-083. Aircraft Yawing Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

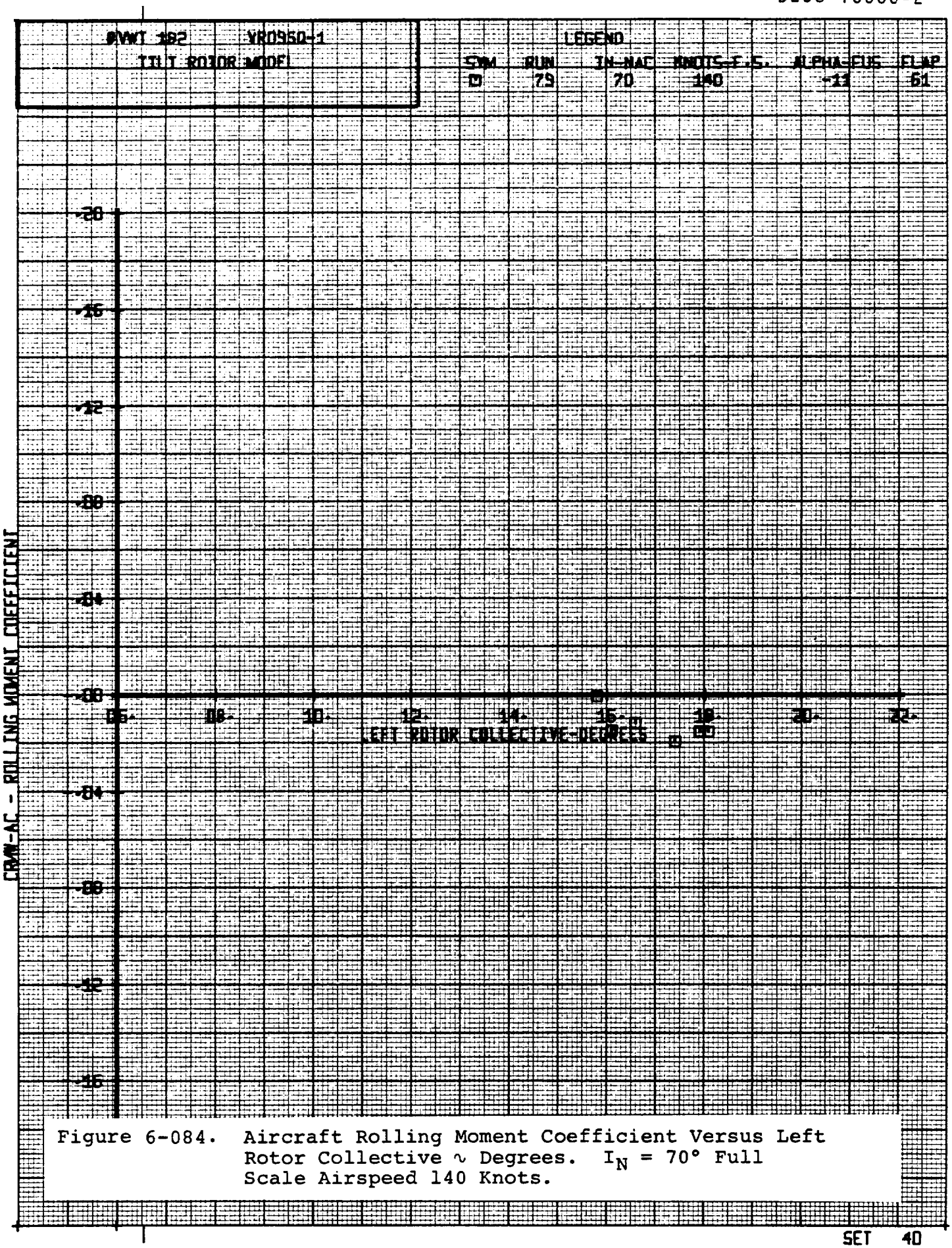


Figure 6-084. Aircraft Rolling Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

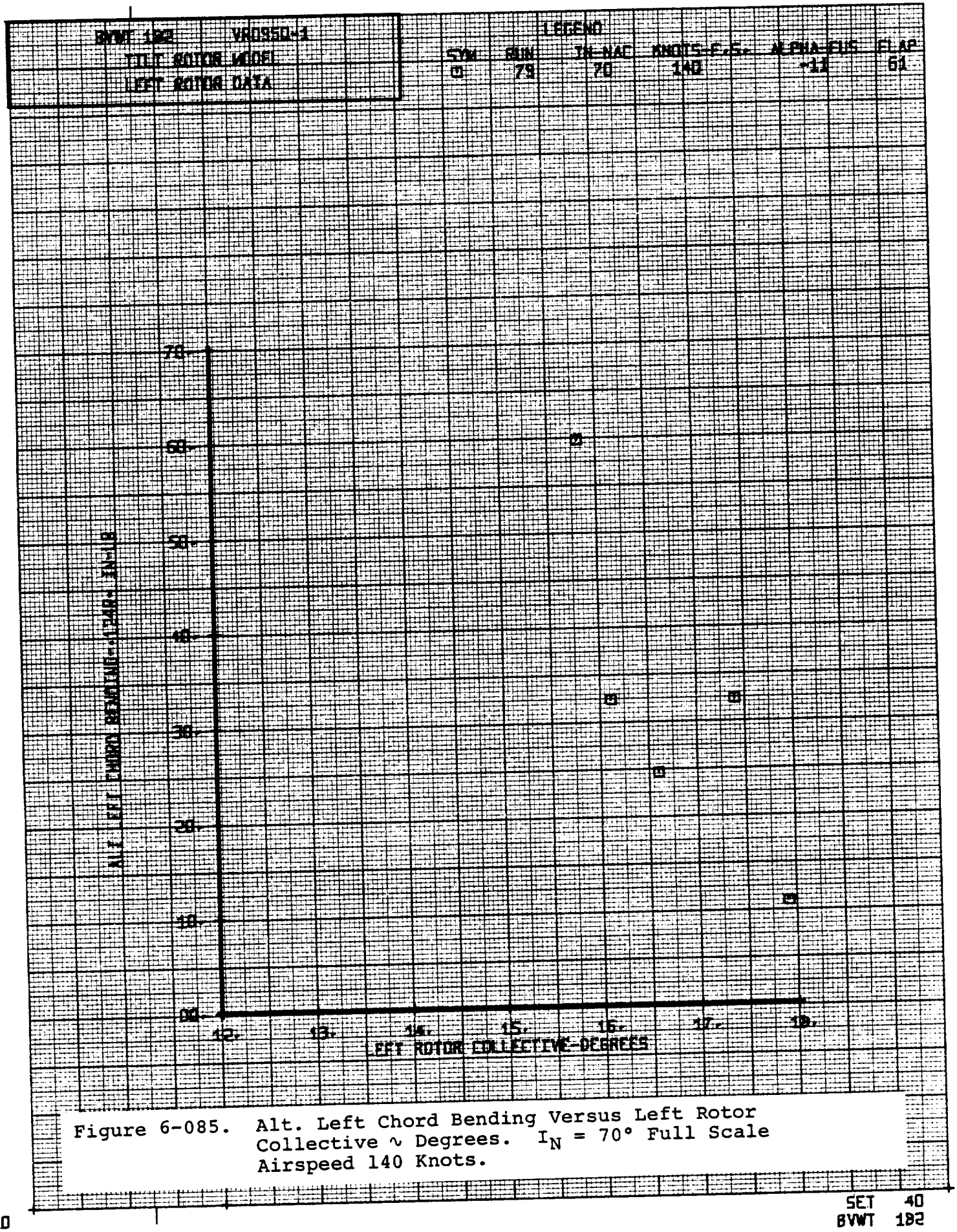


Figure 6-085. Alt. Left Chord Bending Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

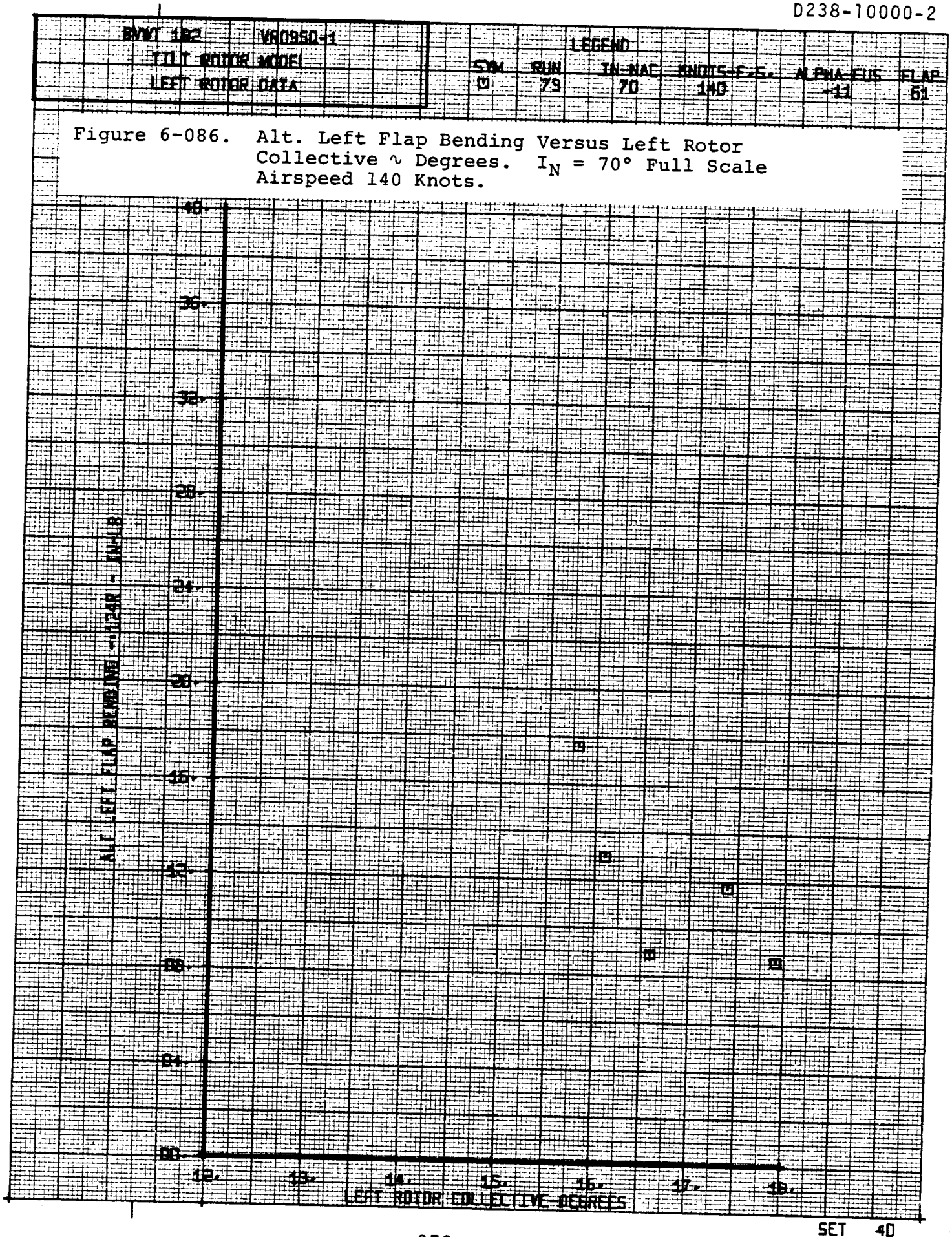


Figure 6-086. Alt. Left Flap Bending Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

40
182

SET 40
BWT 182

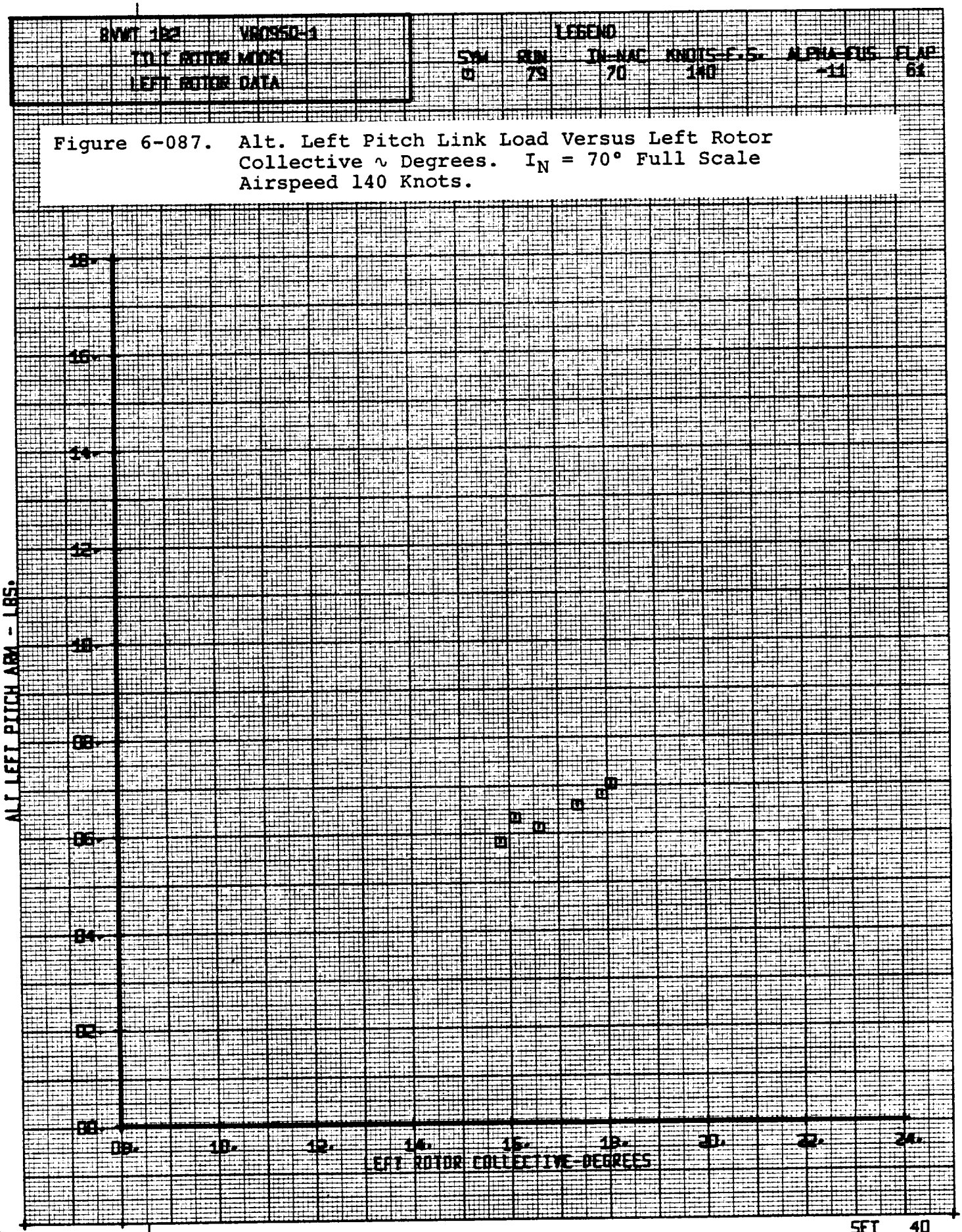


Figure 6-087. Alt. Left Pitch Link Load Versus Left Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

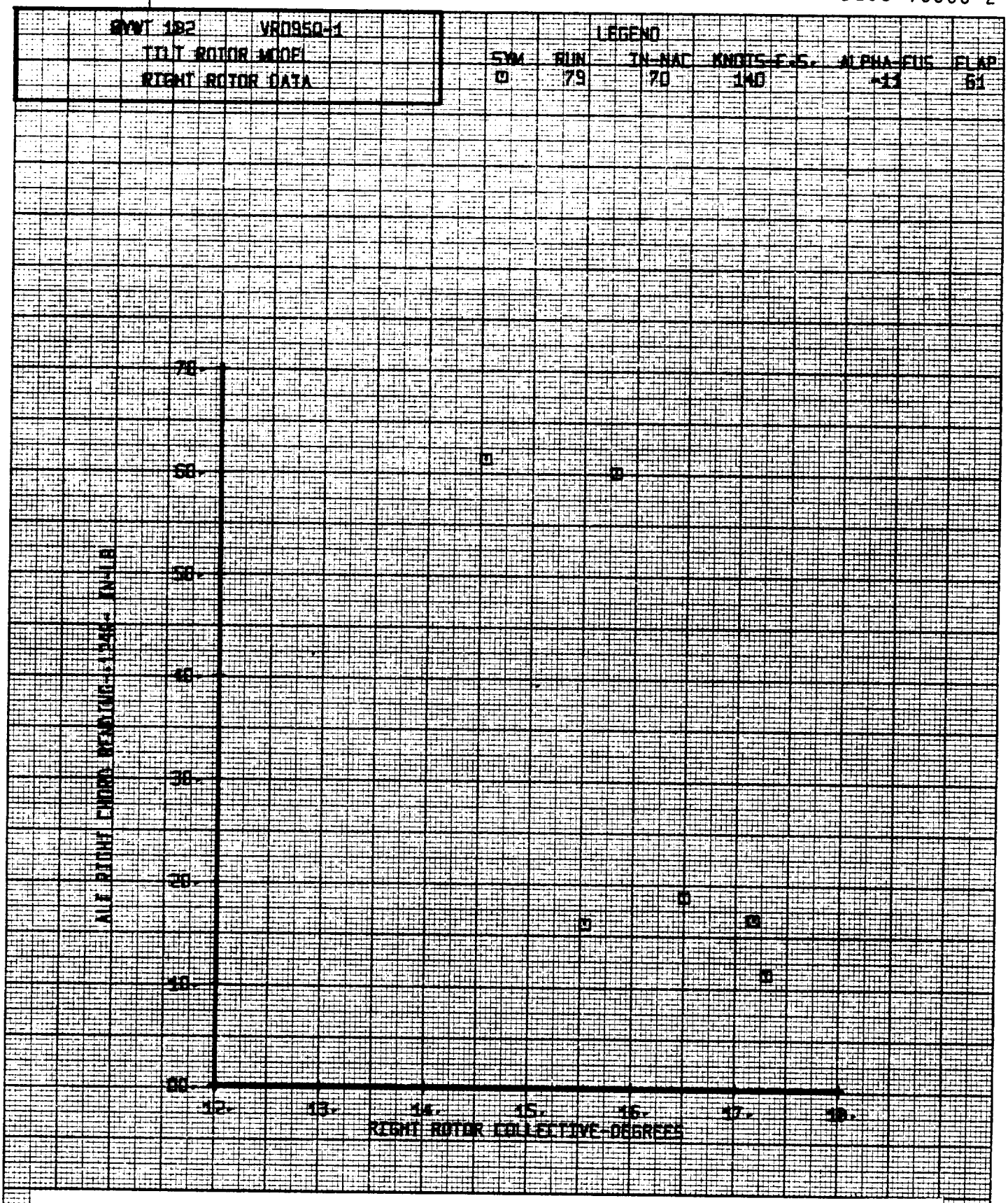


Figure 6-088. Alt. Right Chord Bending Versus Right Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

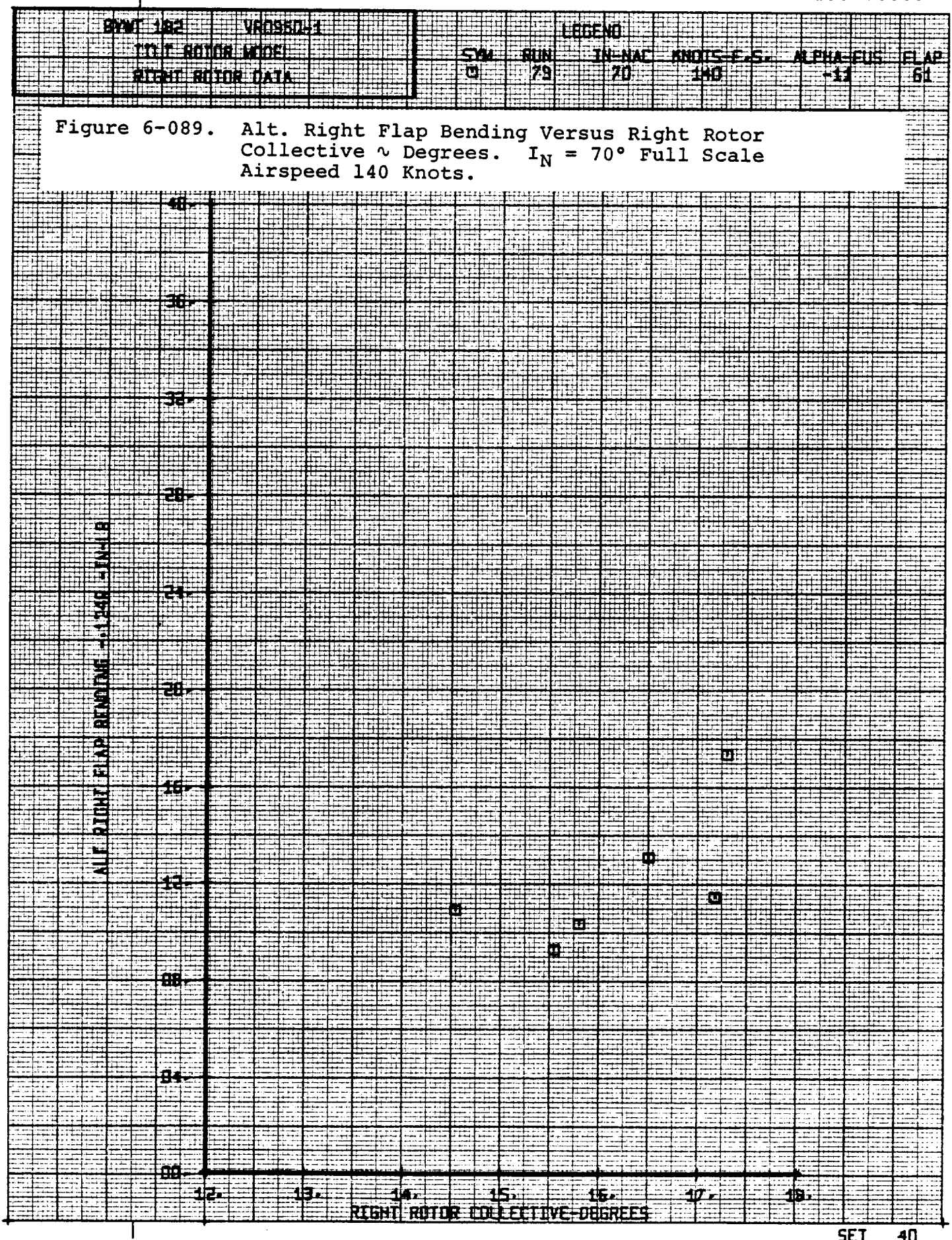


Figure 6-089. Alt. Right Flap Bending Versus Right Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

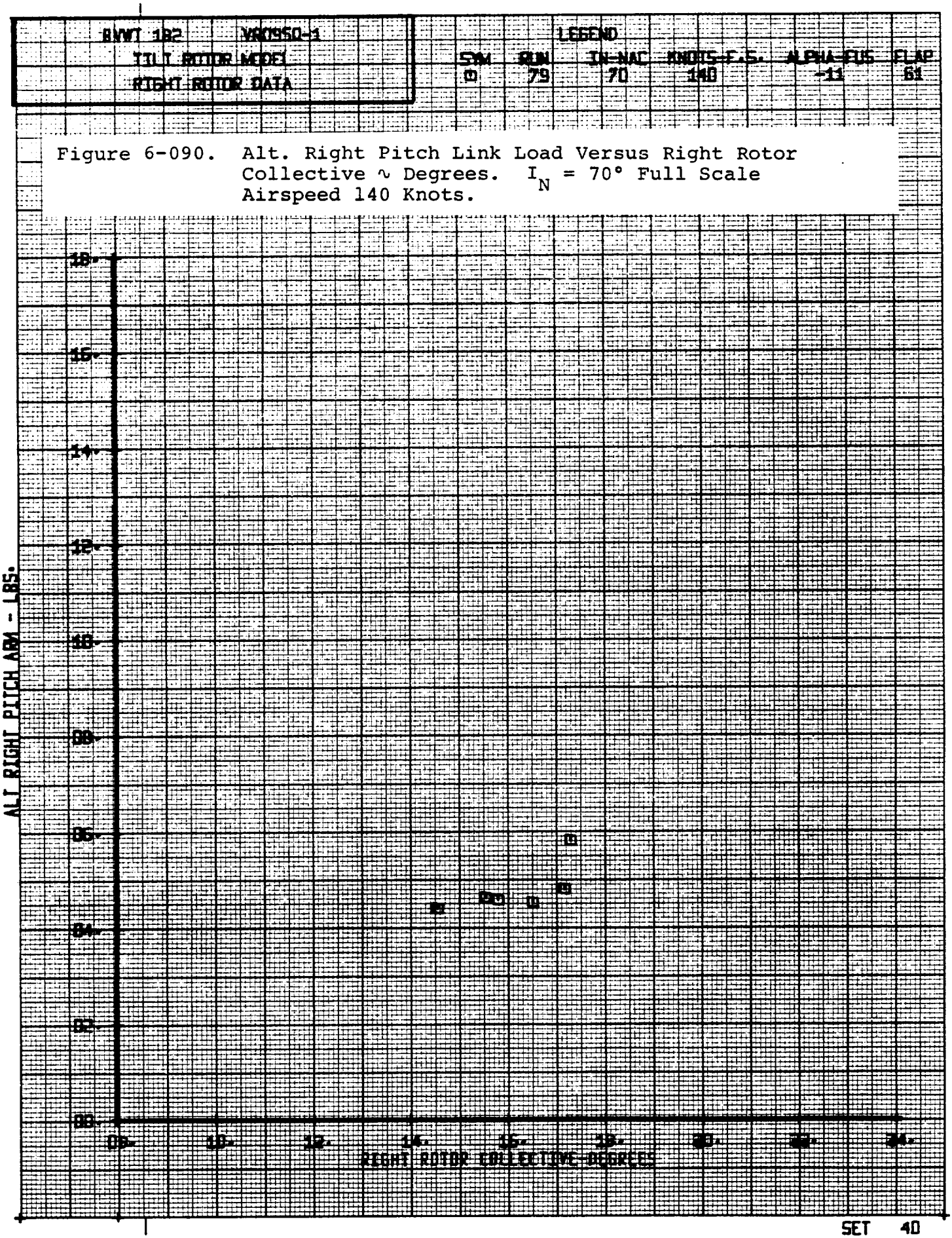


Figure 6-090. Alt. Right Pitch Link Load Versus Right Rotor Collective ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

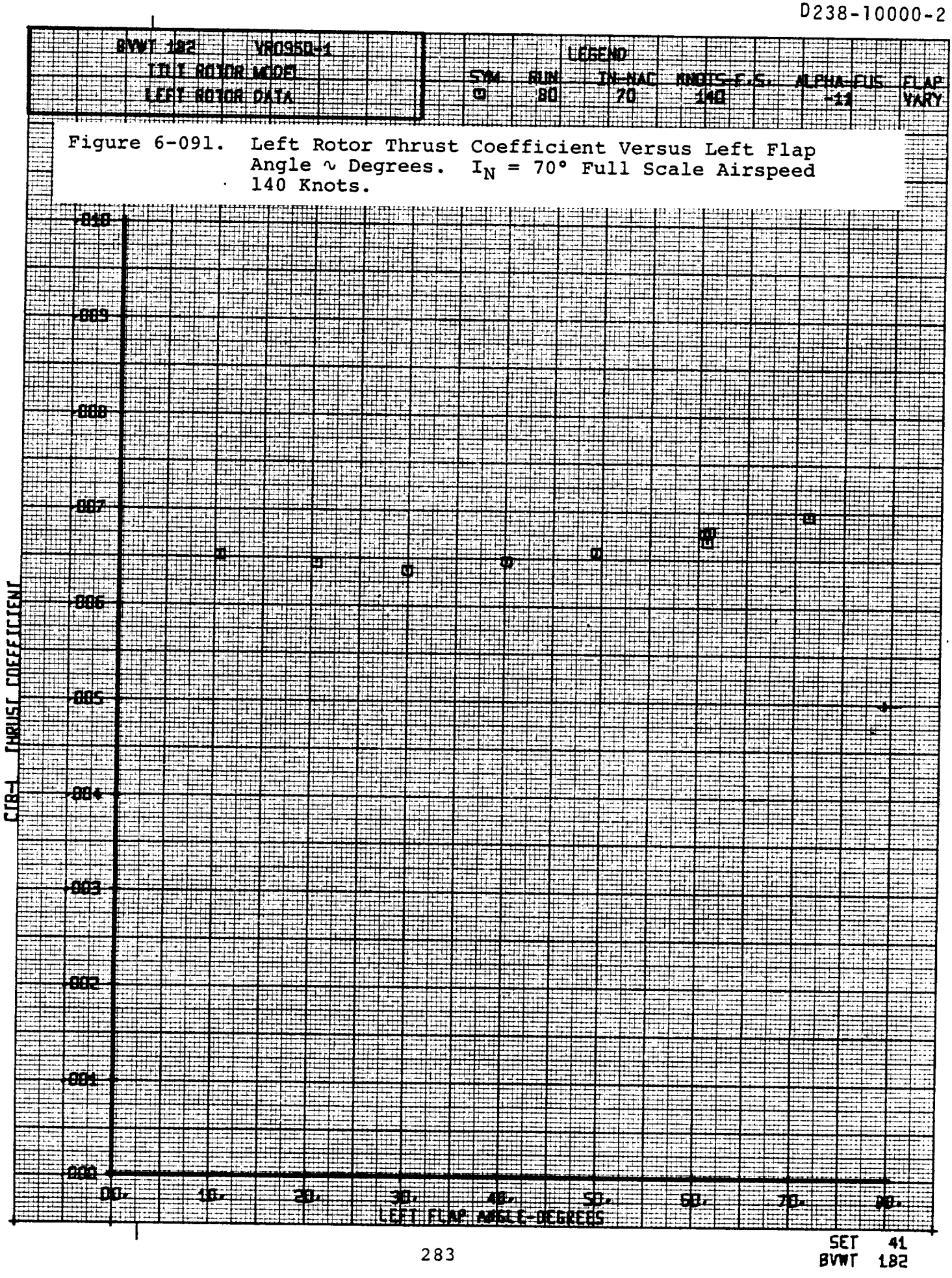


Figure 6-091. Left Rotor Thrust Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

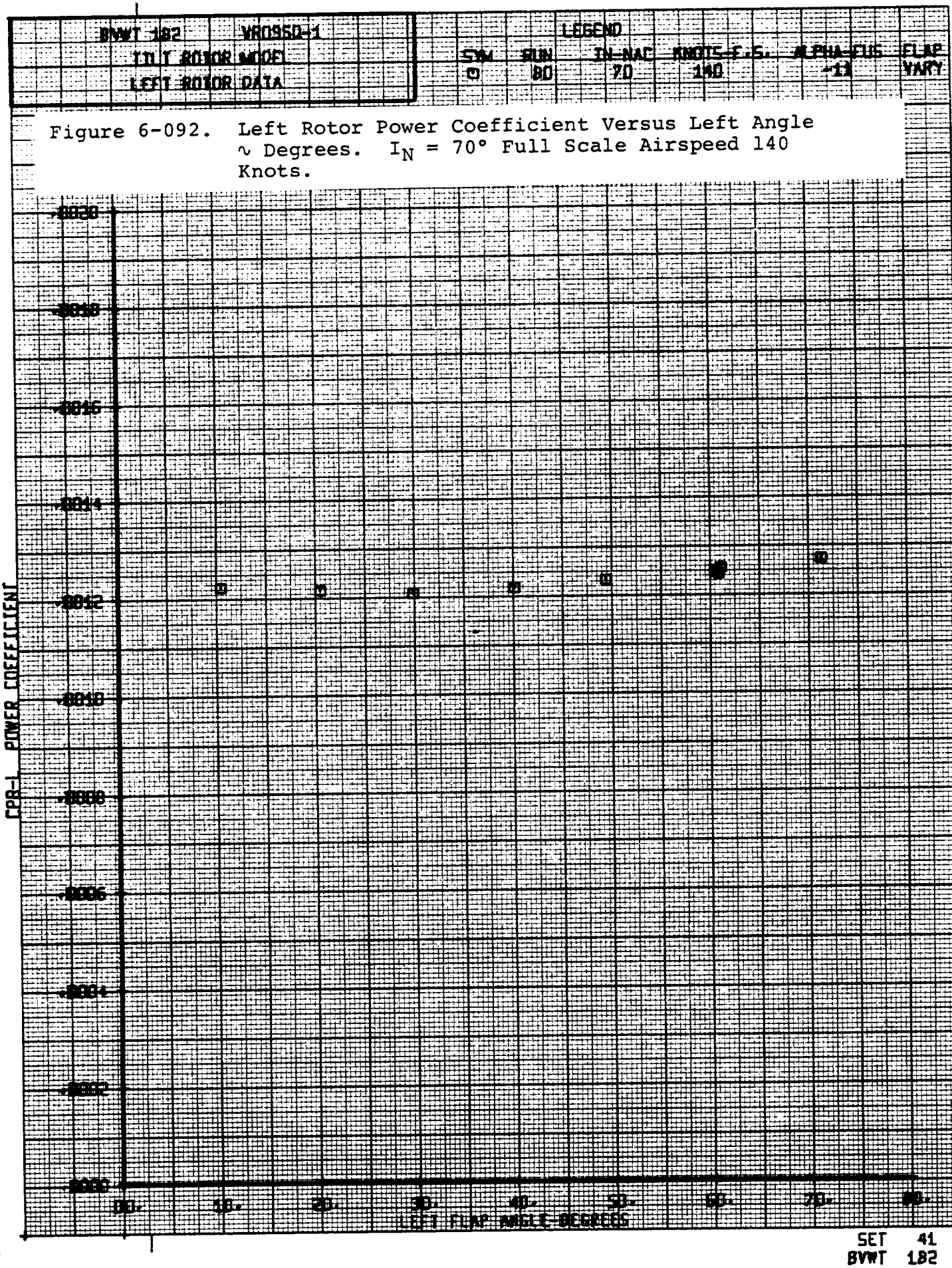


Figure 6-092. Left Rotor Power Coefficient Versus Left Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

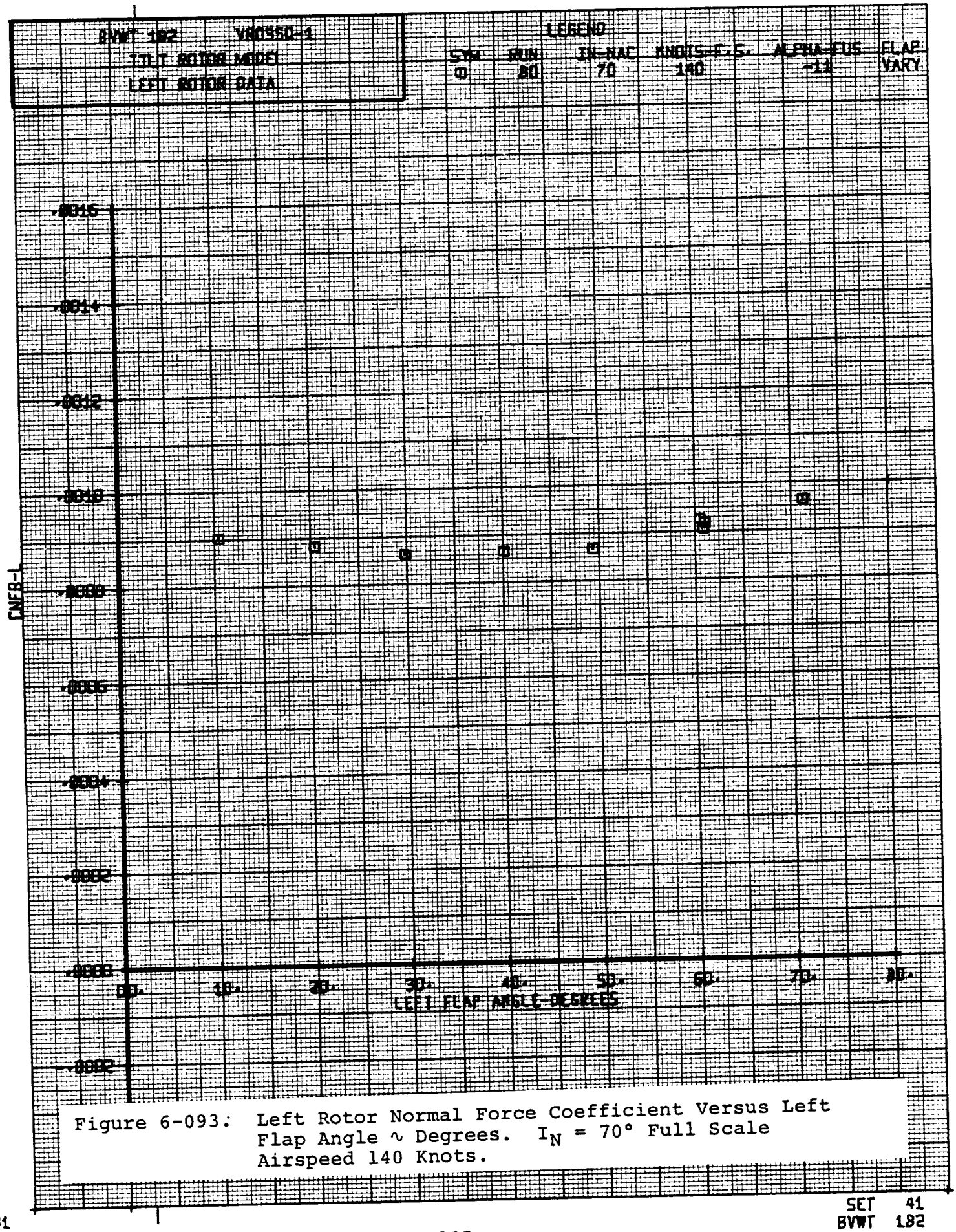


Figure 6-093. Left Rotor Normal Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

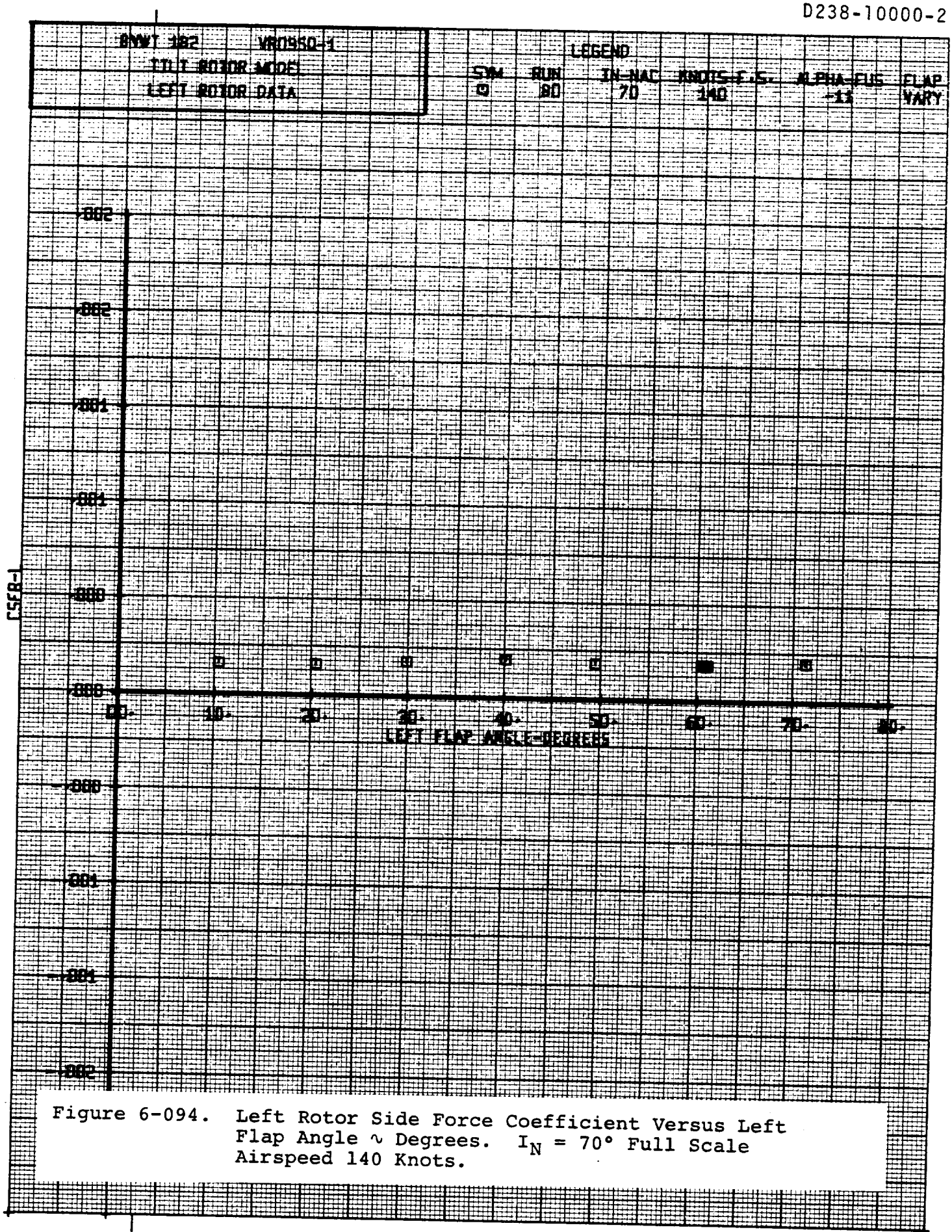


Figure 6-094. Left Rotor Side Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

41
182

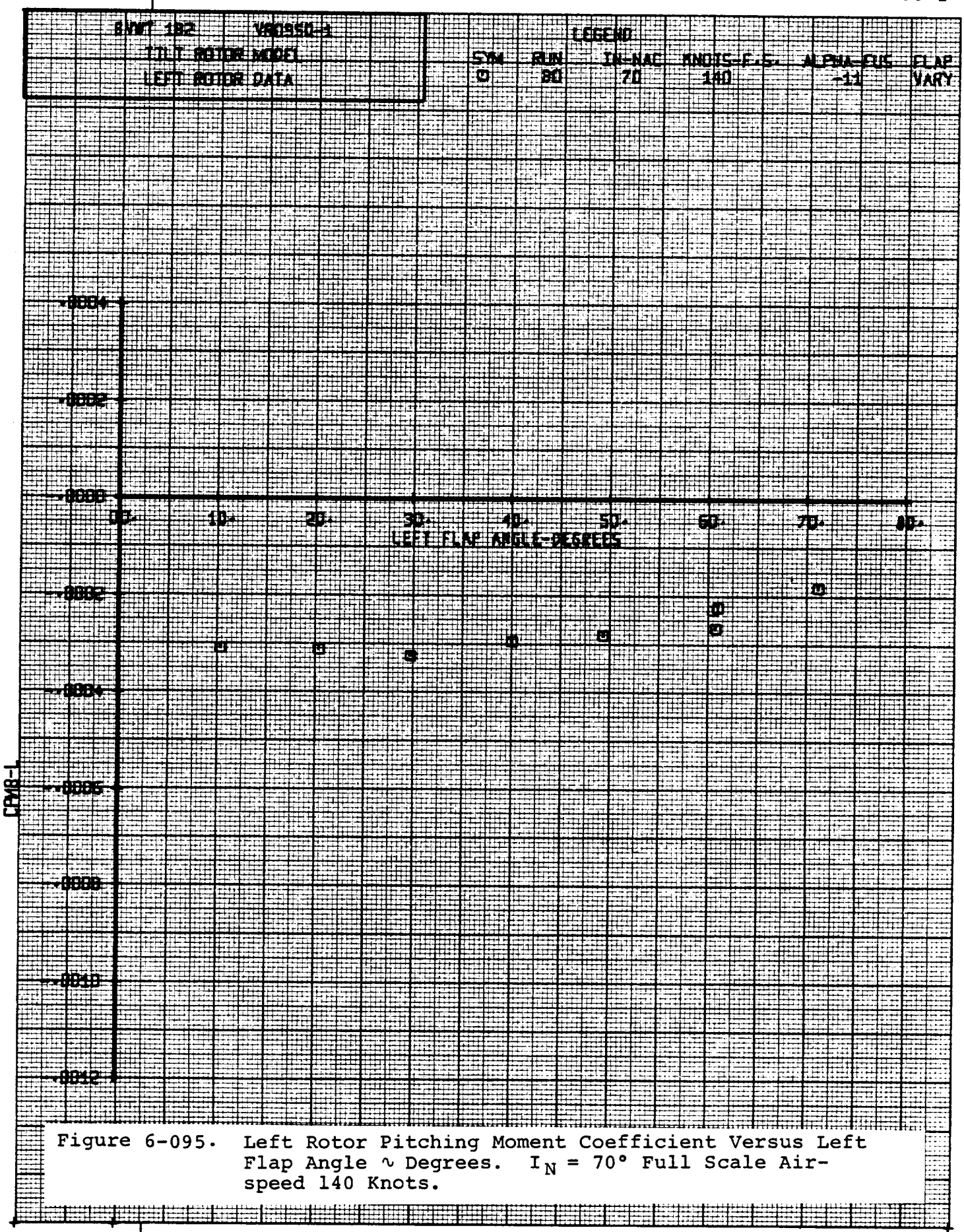


Figure 6-095. Left Rotor Pitching Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

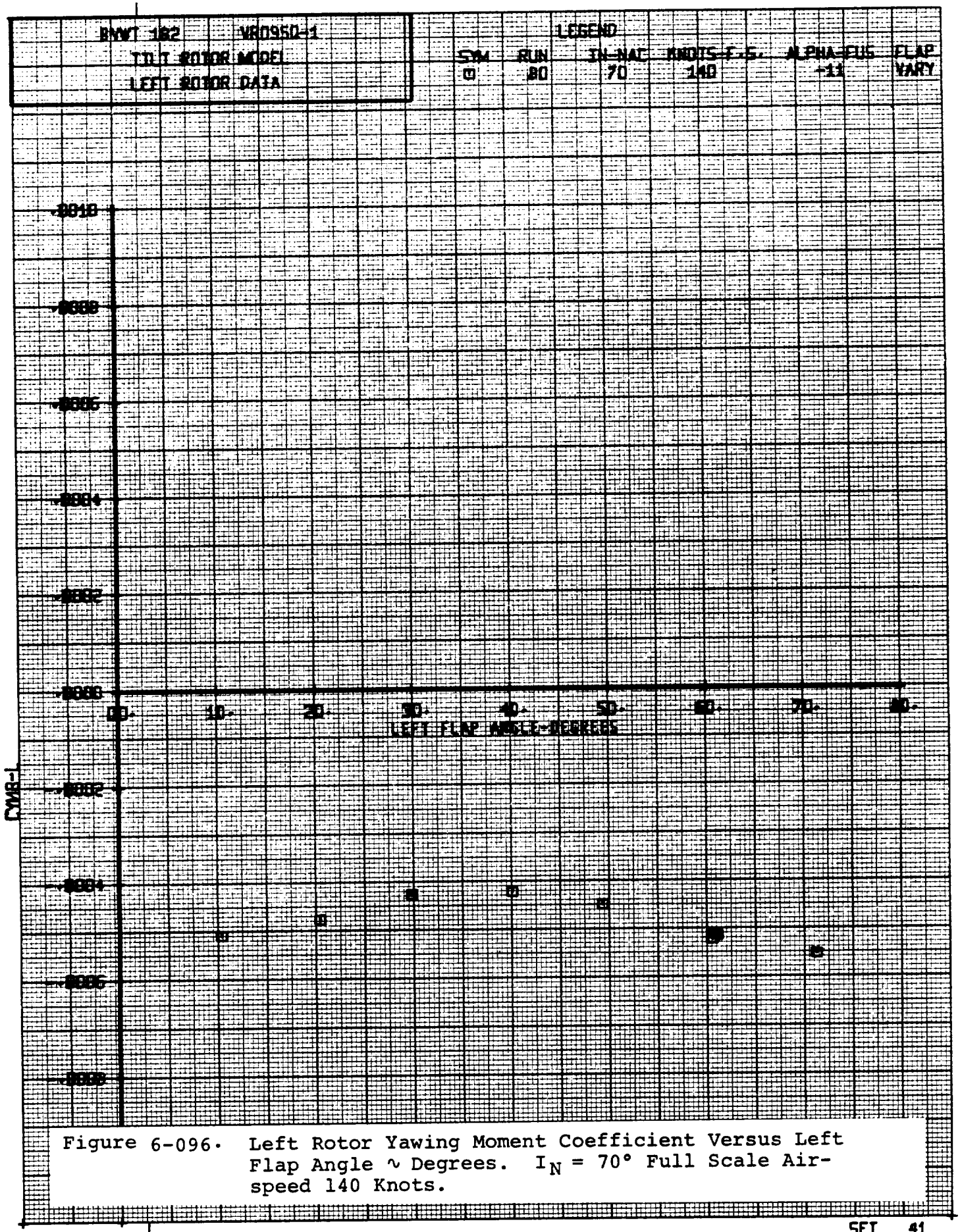


Figure 6-096. Left Rotor Yawing Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

41
182

SET 41
BWT 182

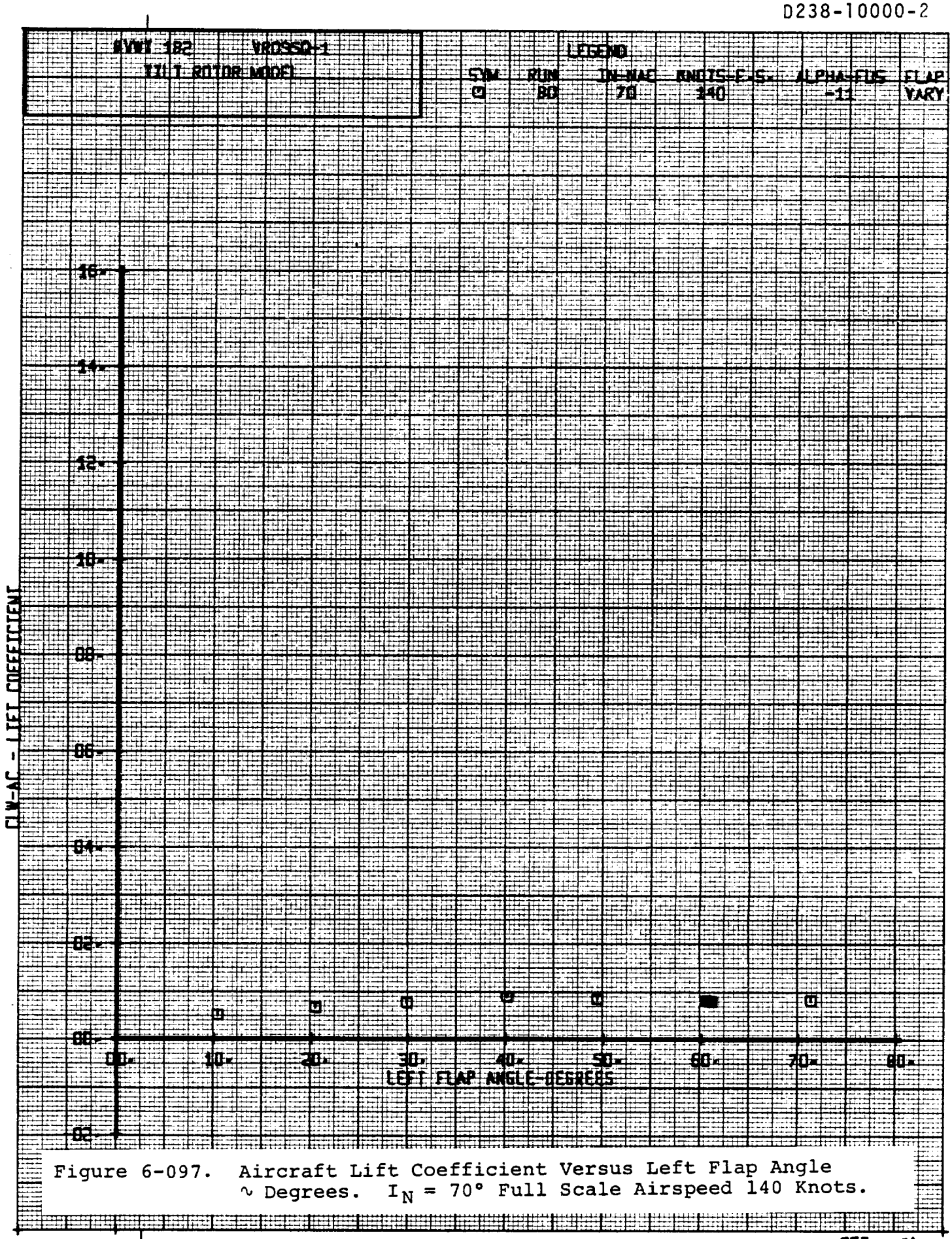


Figure 6-097. Aircraft Lift Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

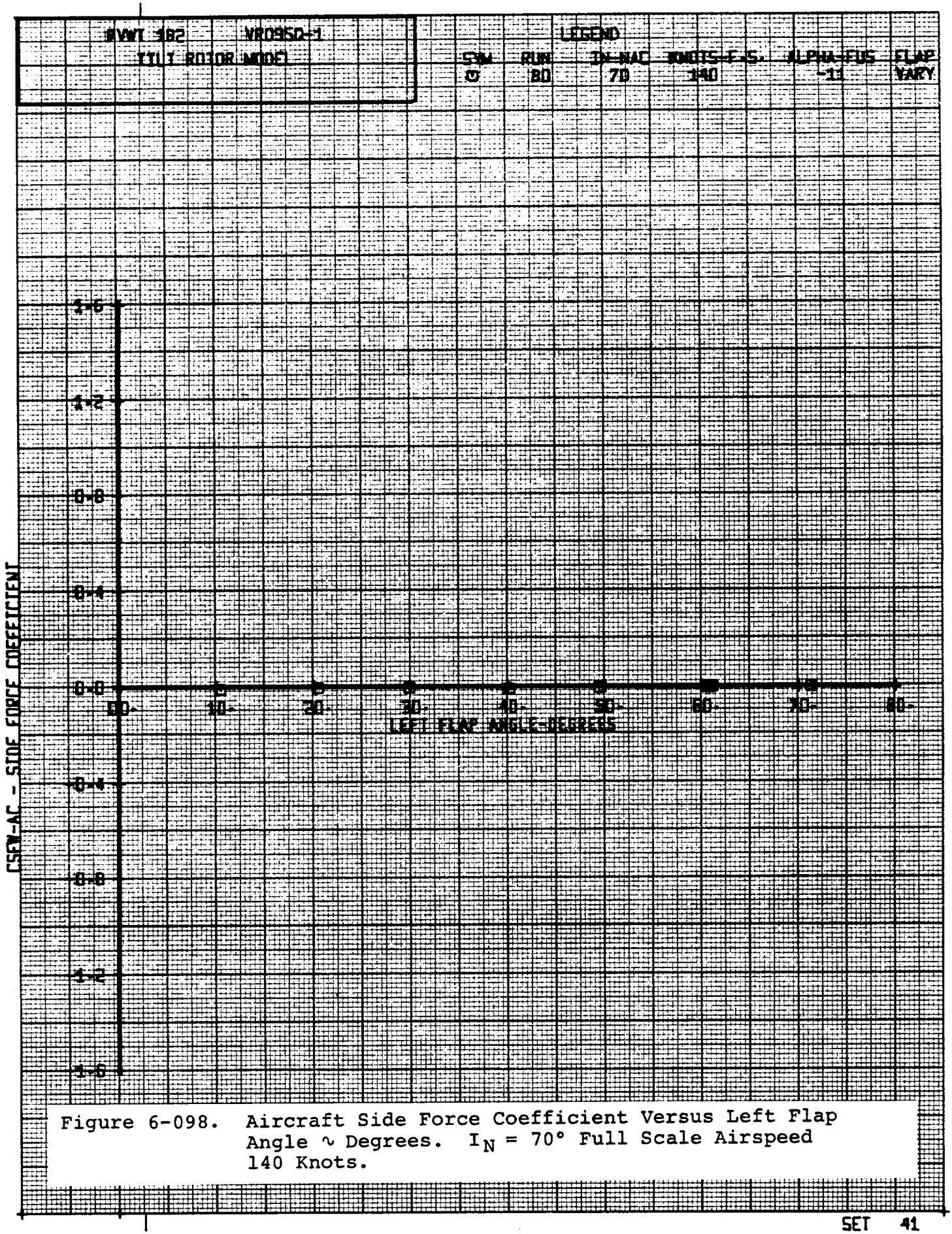


Figure 6-098. Aircraft Side Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

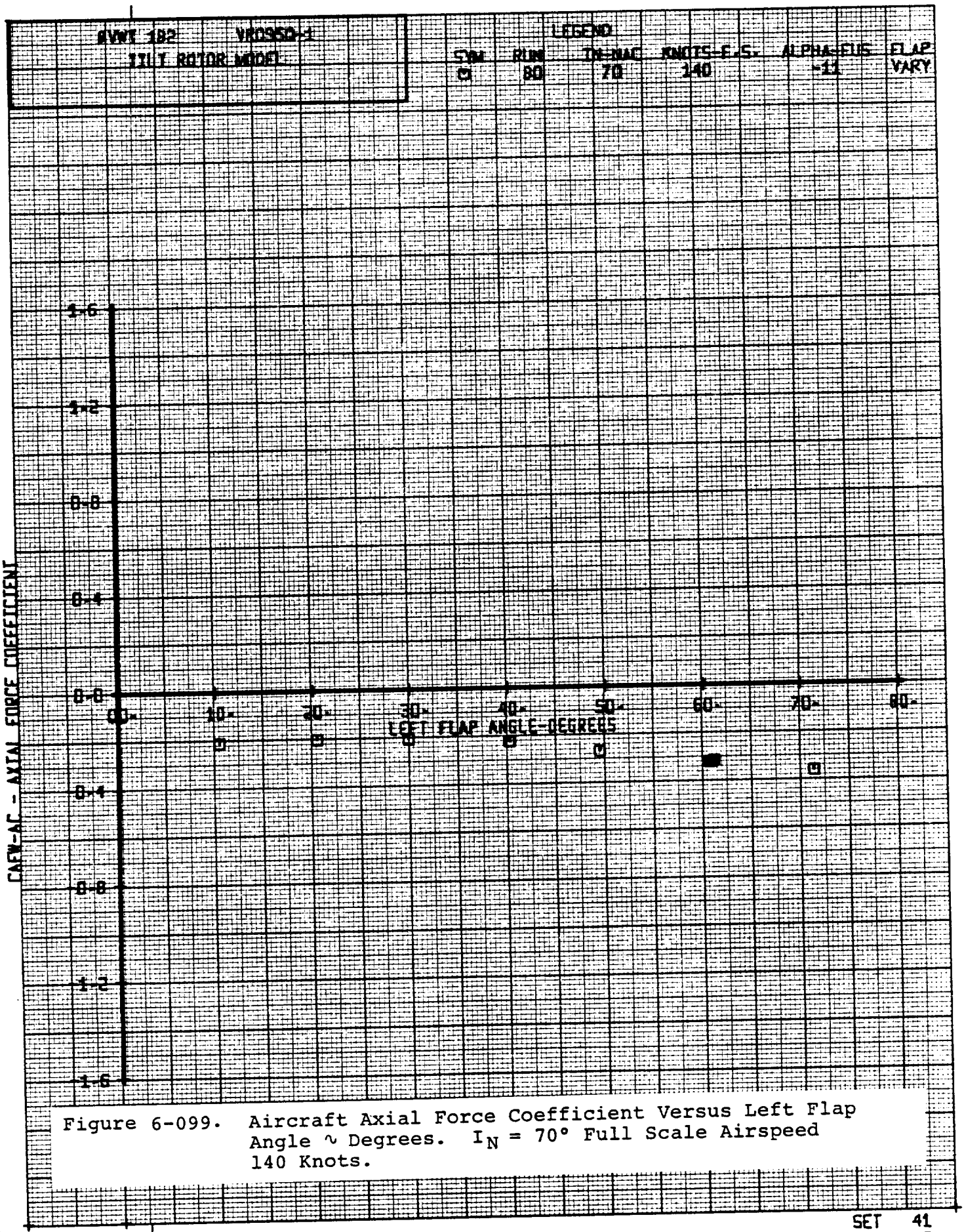


Figure 6-099. Aircraft Axial Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

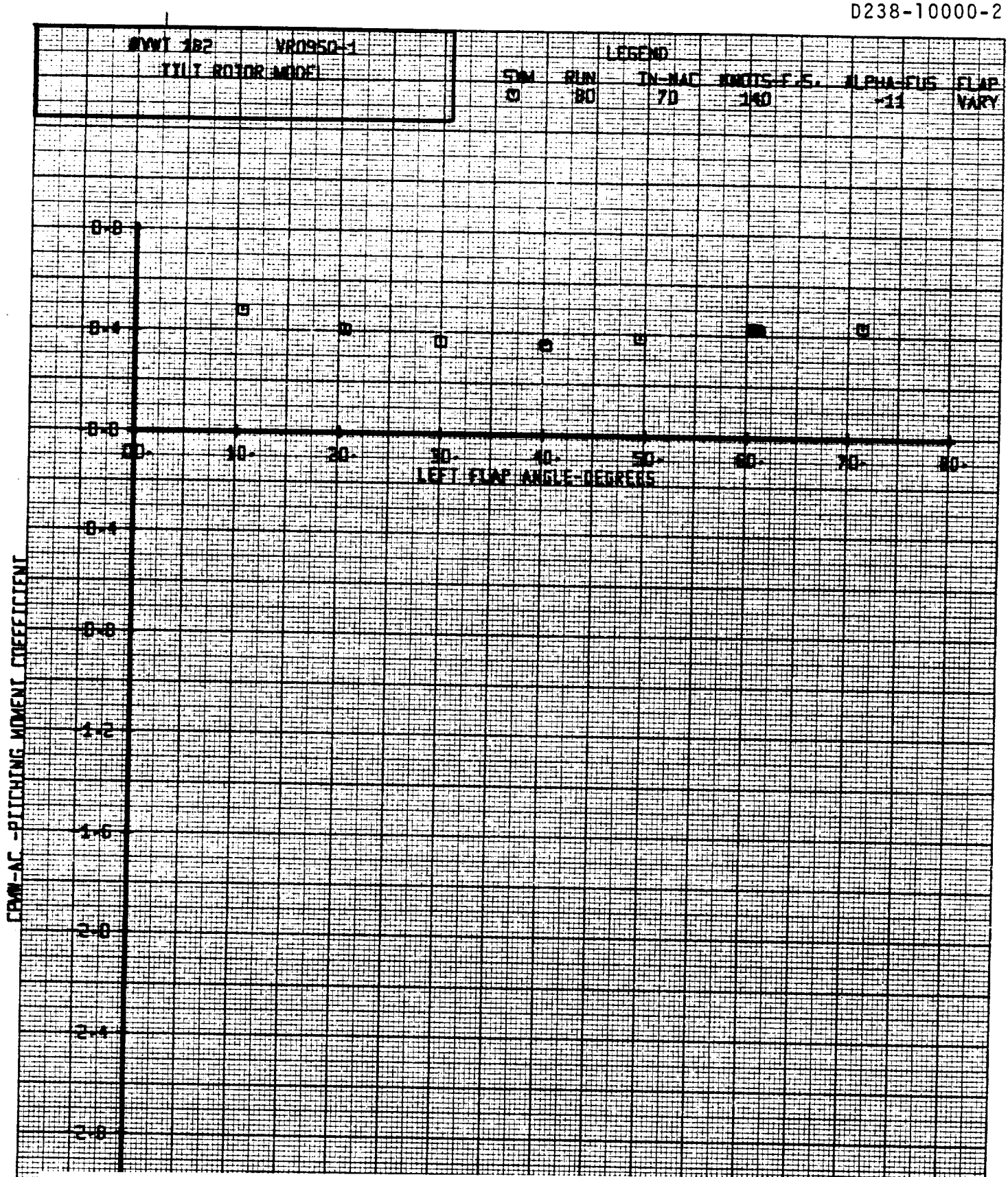


Figure 6-100. Aircraft Pitching Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

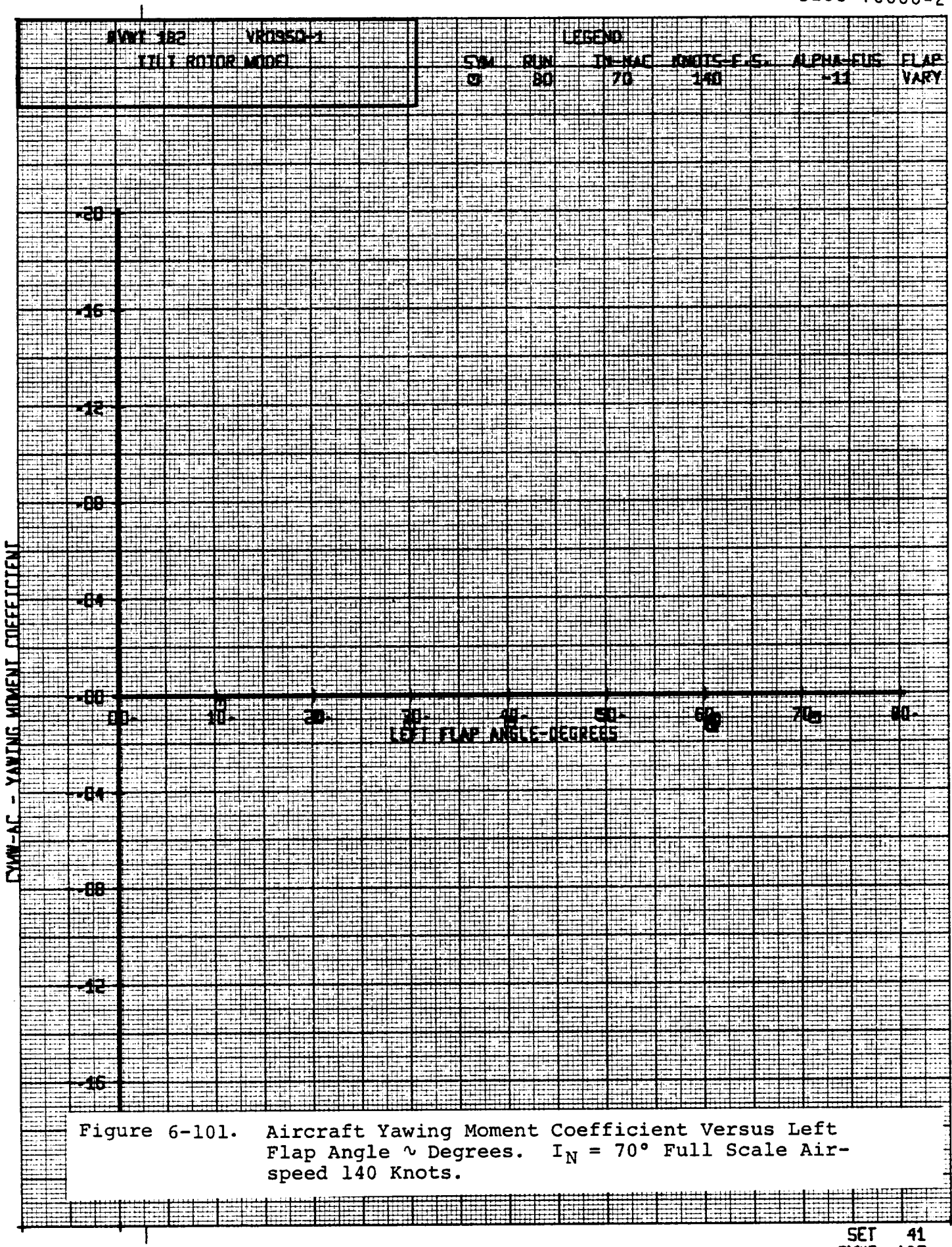


Figure 6-101. Aircraft Yawing Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

SET 41
BVWT 182

SET 41
BVWT 182

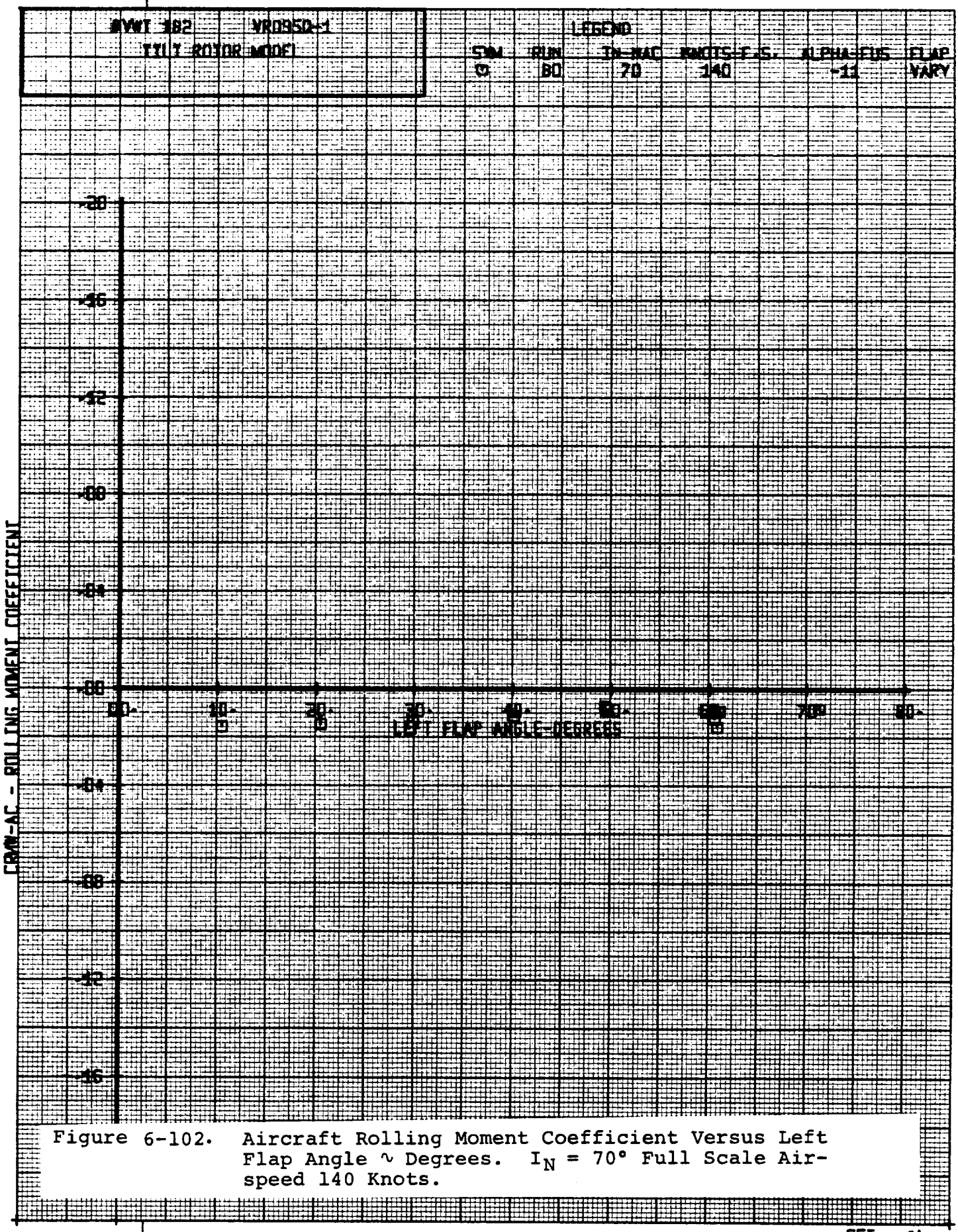


Figure 6-102. Aircraft Rolling Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

41
182

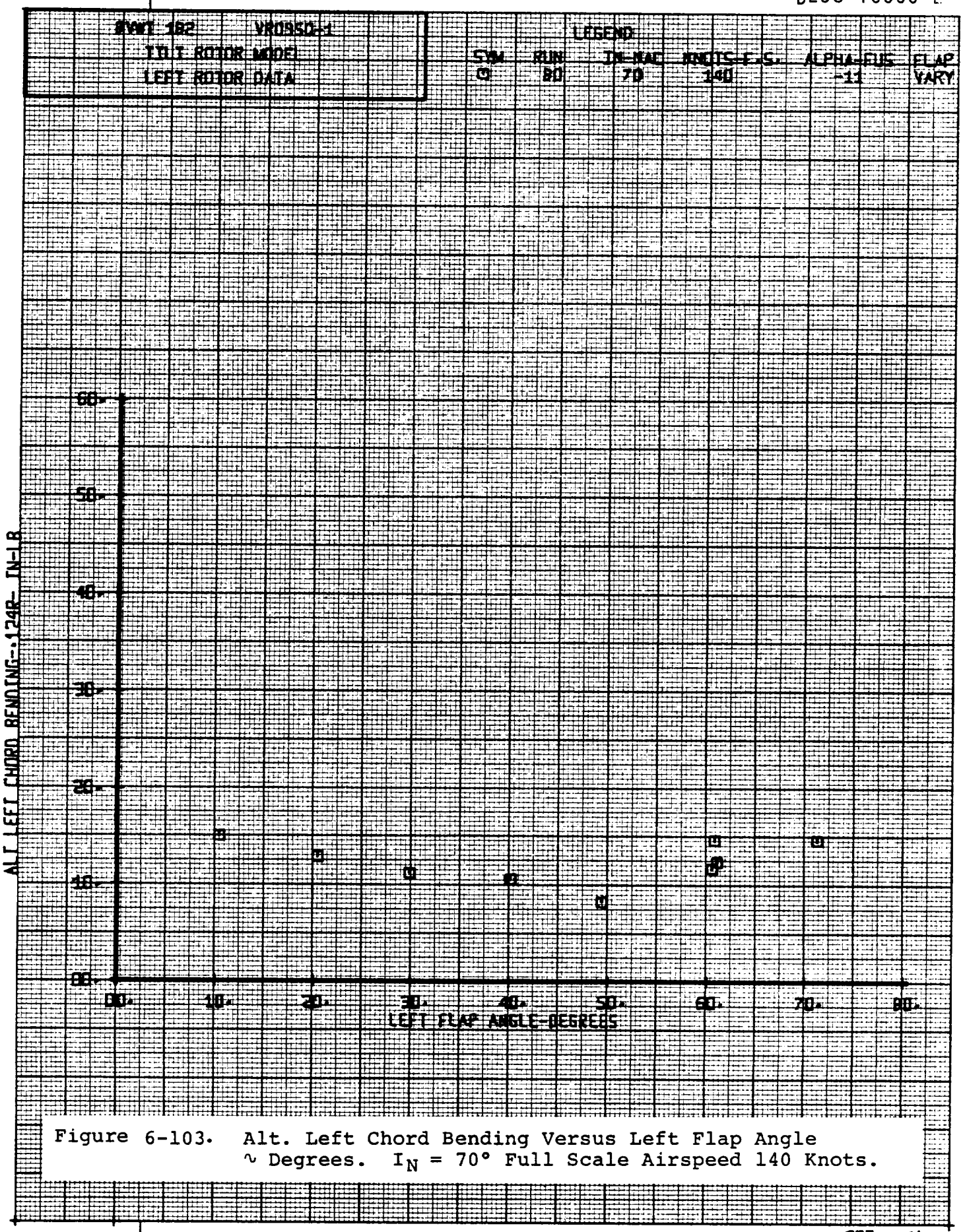


Figure 6-103. Alt. Left Chord Bending Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

SET 41
BVWT 182

SET 41
BVWT 182

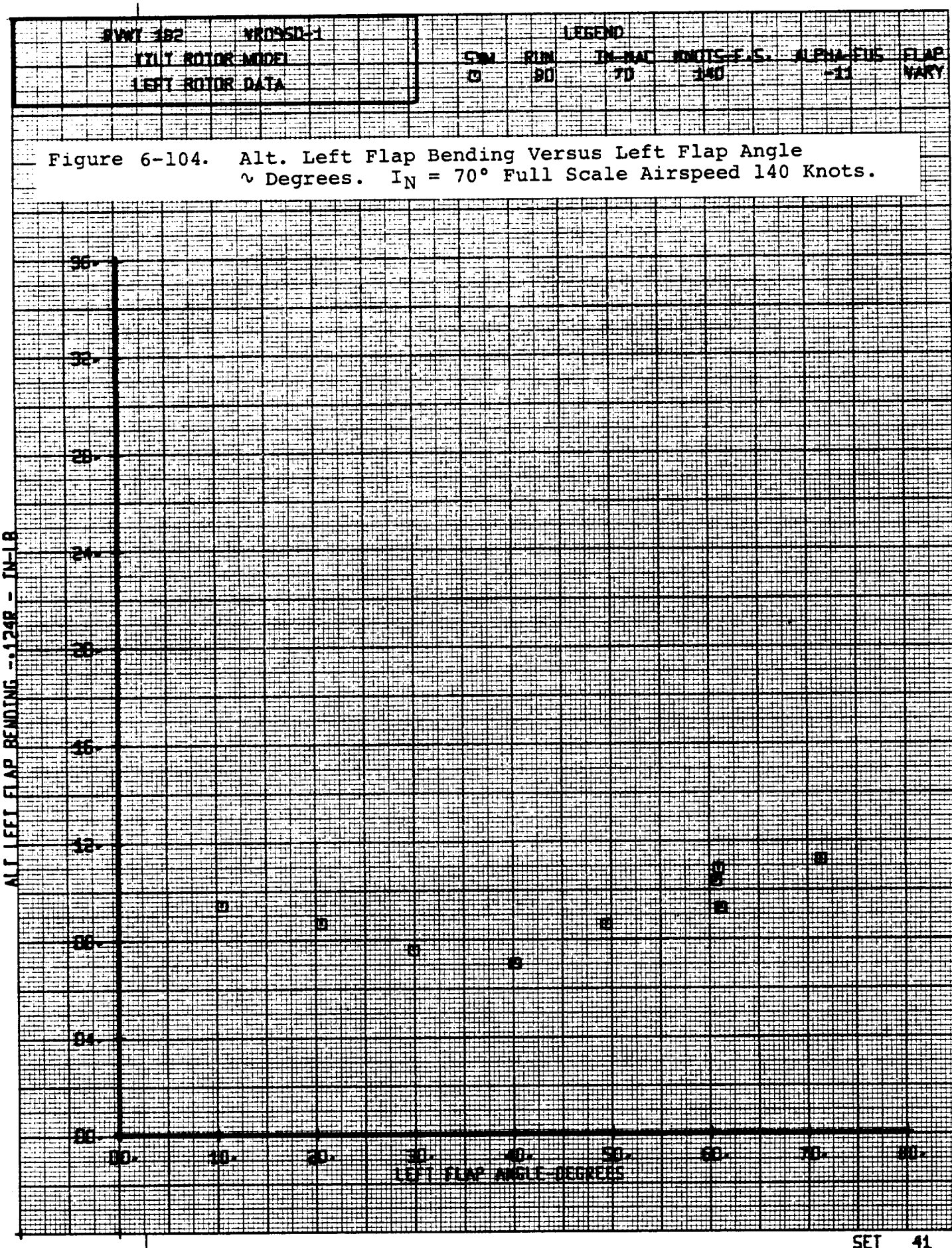


Figure 6-104. Alt. Left Flap Bending Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

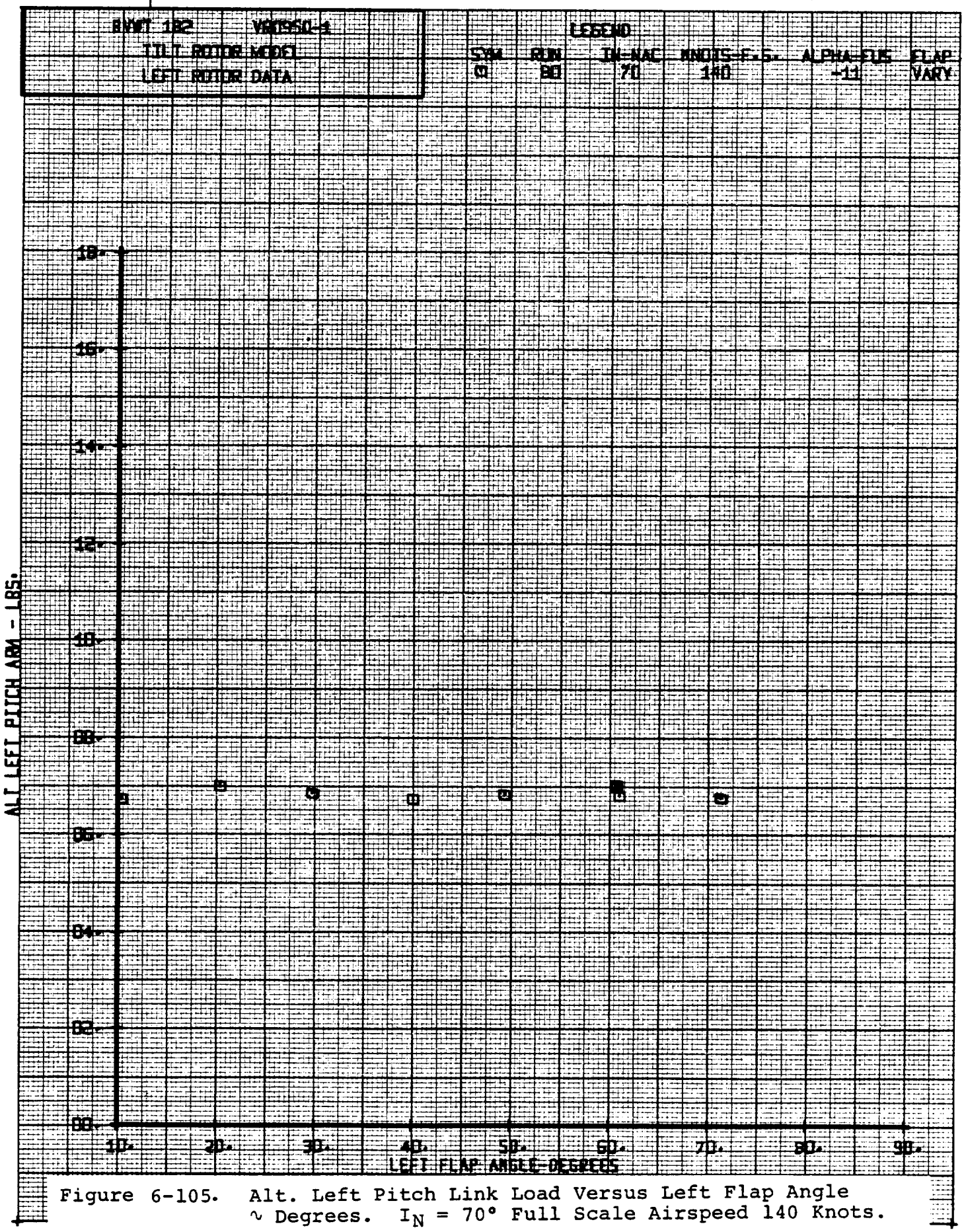


Figure 6-105. Alt. Left Pitch Link Load Versus Left Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

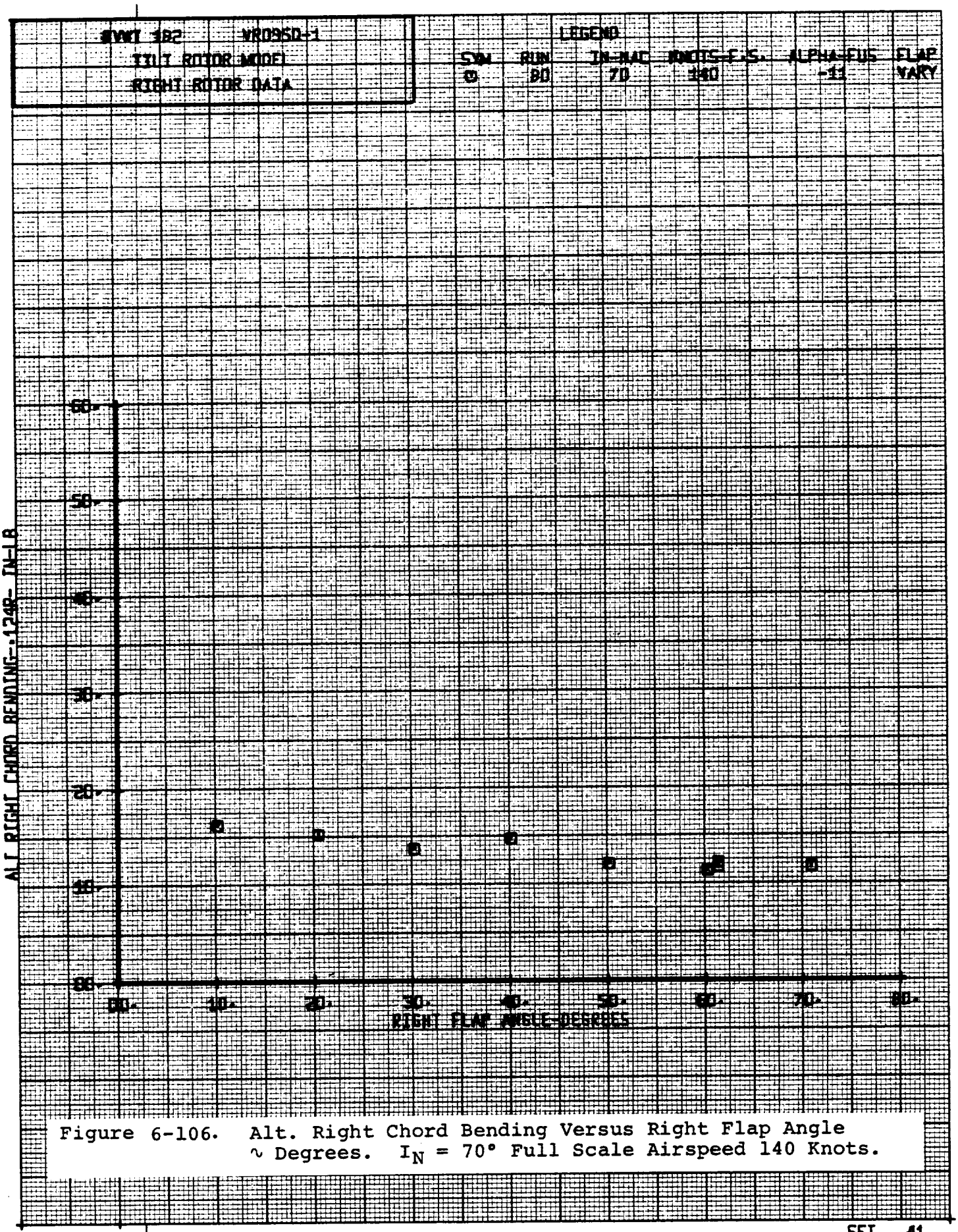


Figure 6-106. Alt. Right Chord Bending Versus Right Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

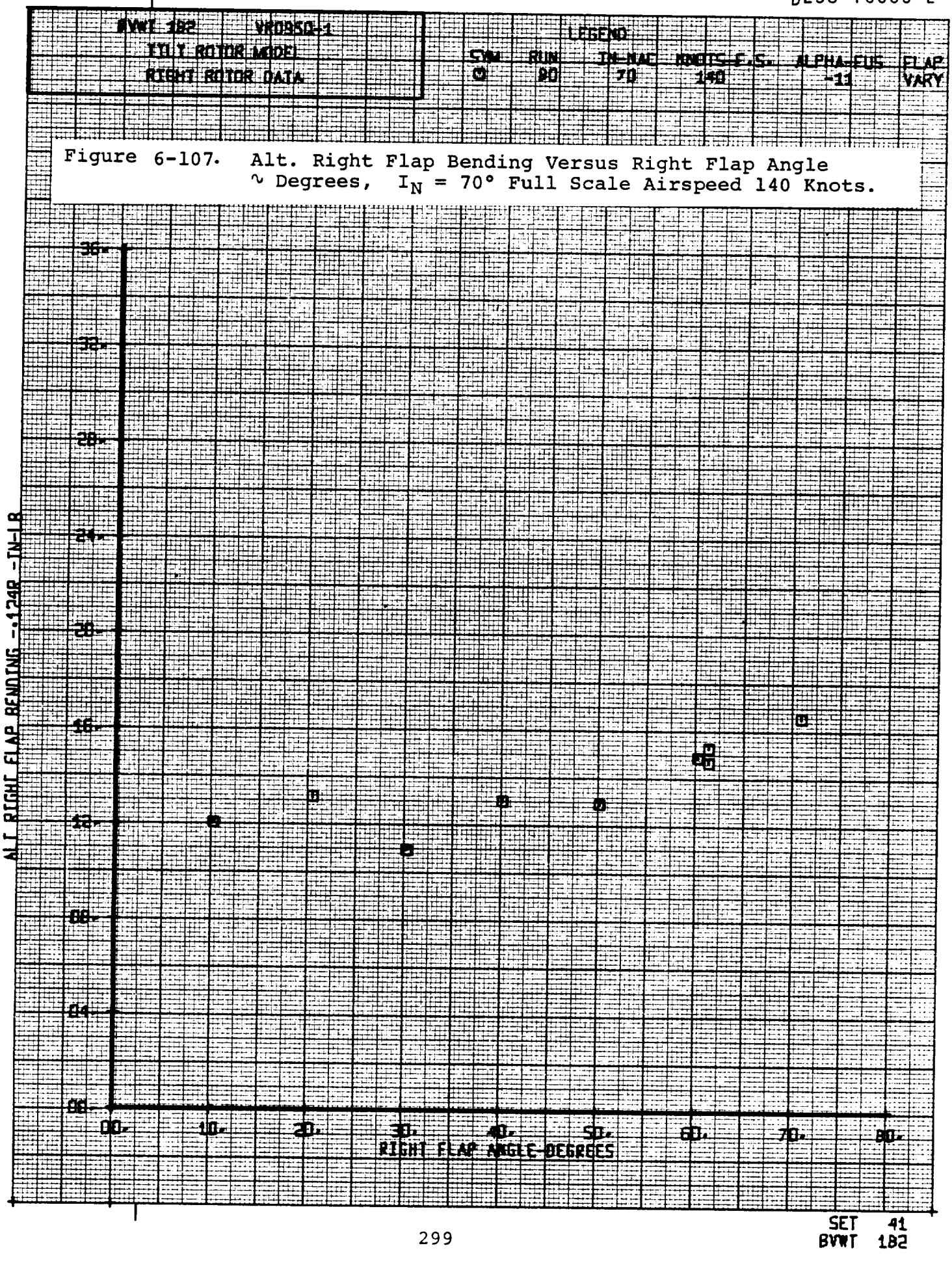


Figure 6-107. Alt. Right Flap Bending Versus Right Flap Angle ∿ Degrees, I_N = 70° Full Scale Airspeed 140 Knots.

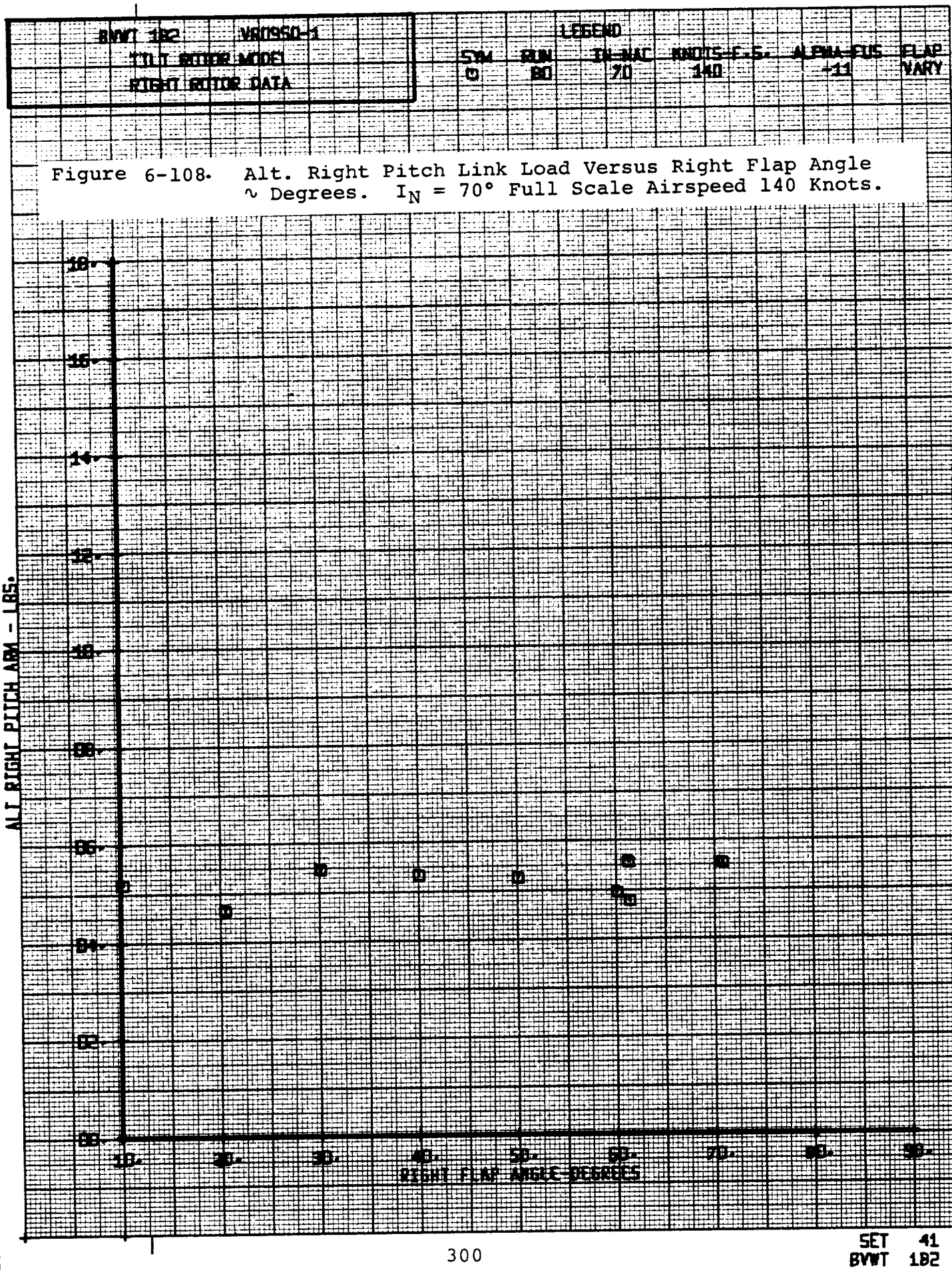


Figure 6-108. Alt. Right Pitch Link Load Versus Right Flap Angle ∿ Degrees. I_N = 70° Full Scale Airspeed 140 Knots.

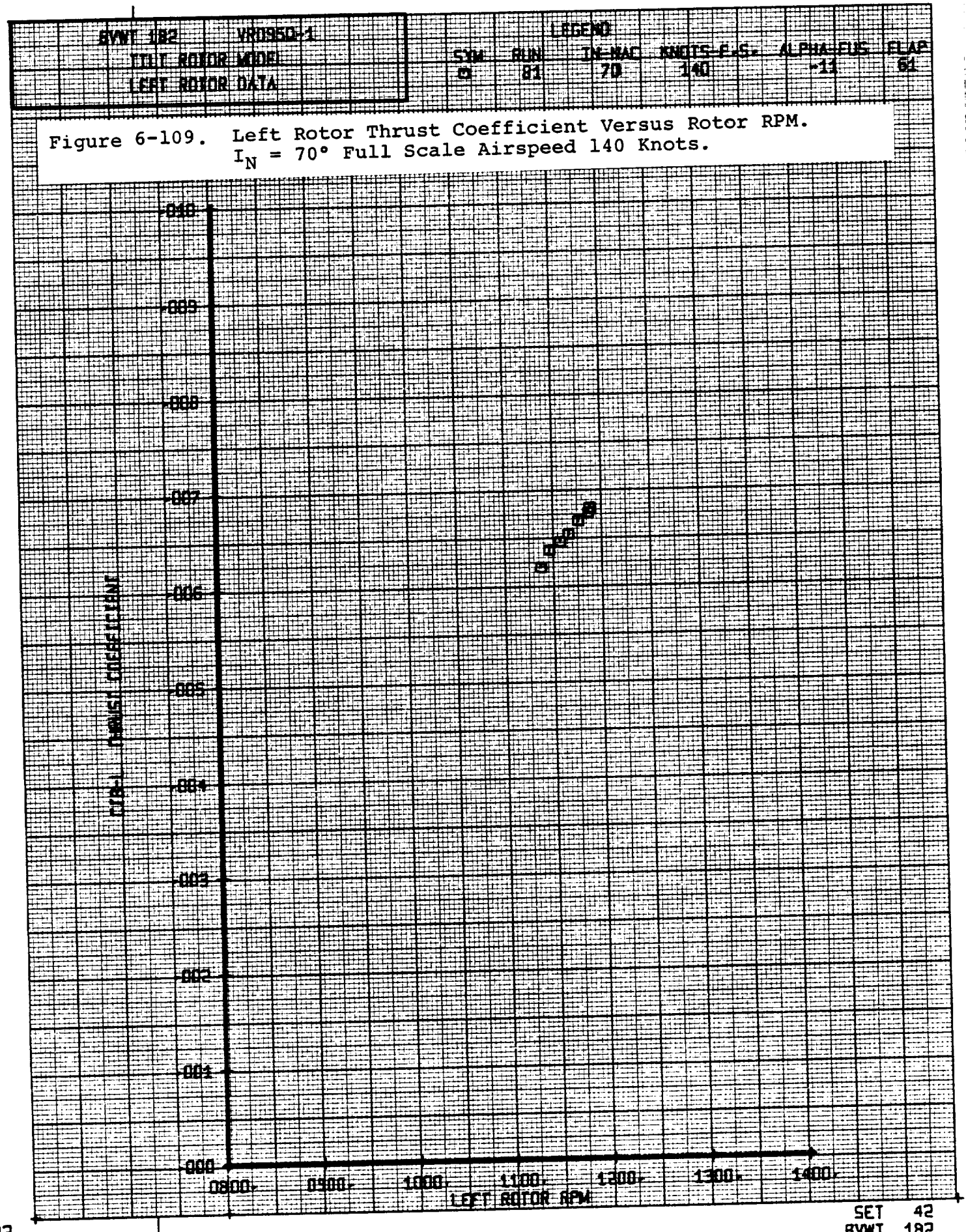


Figure 6-109. Left Rotor Thrust Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

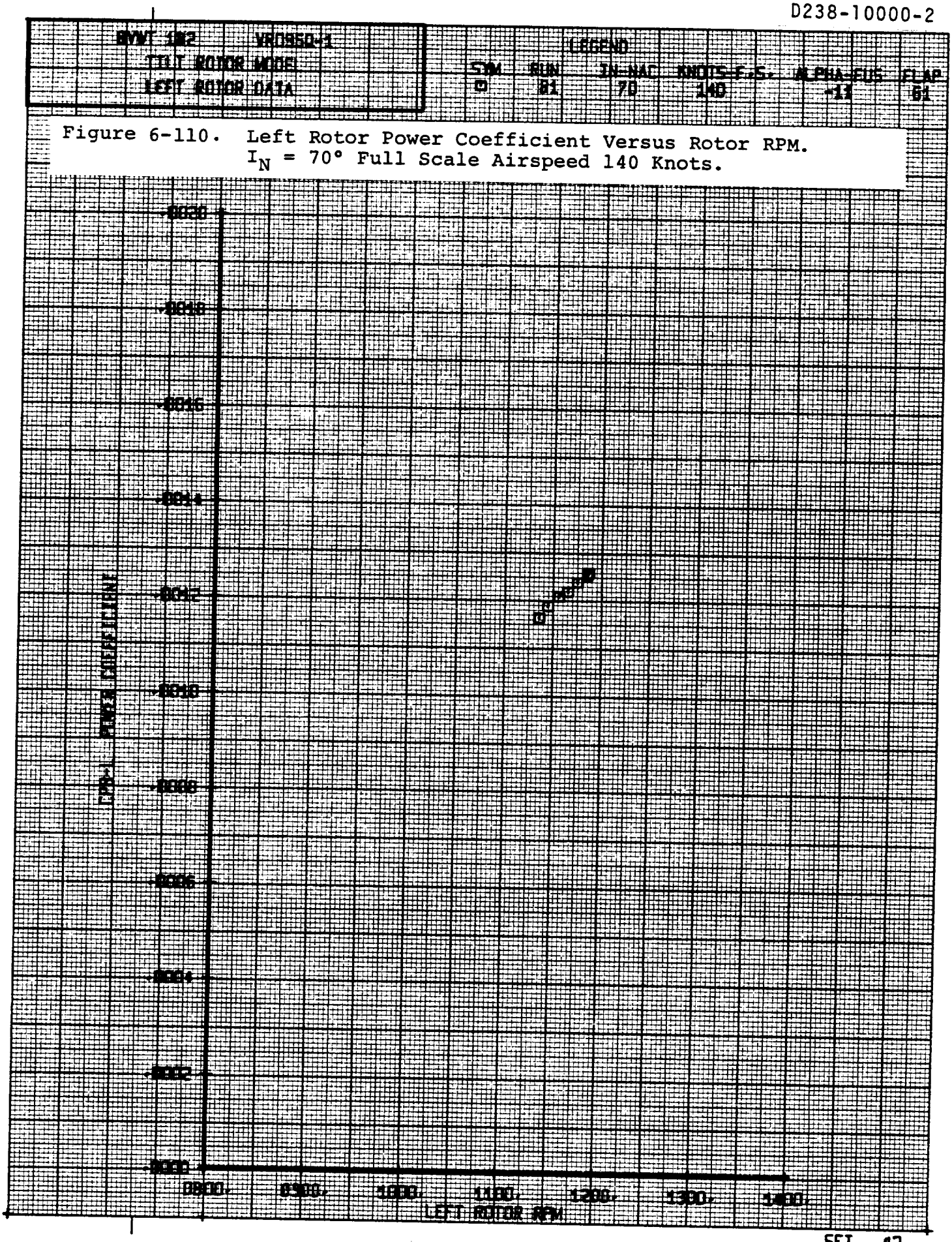


Figure 6-110. Left Rotor Power Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

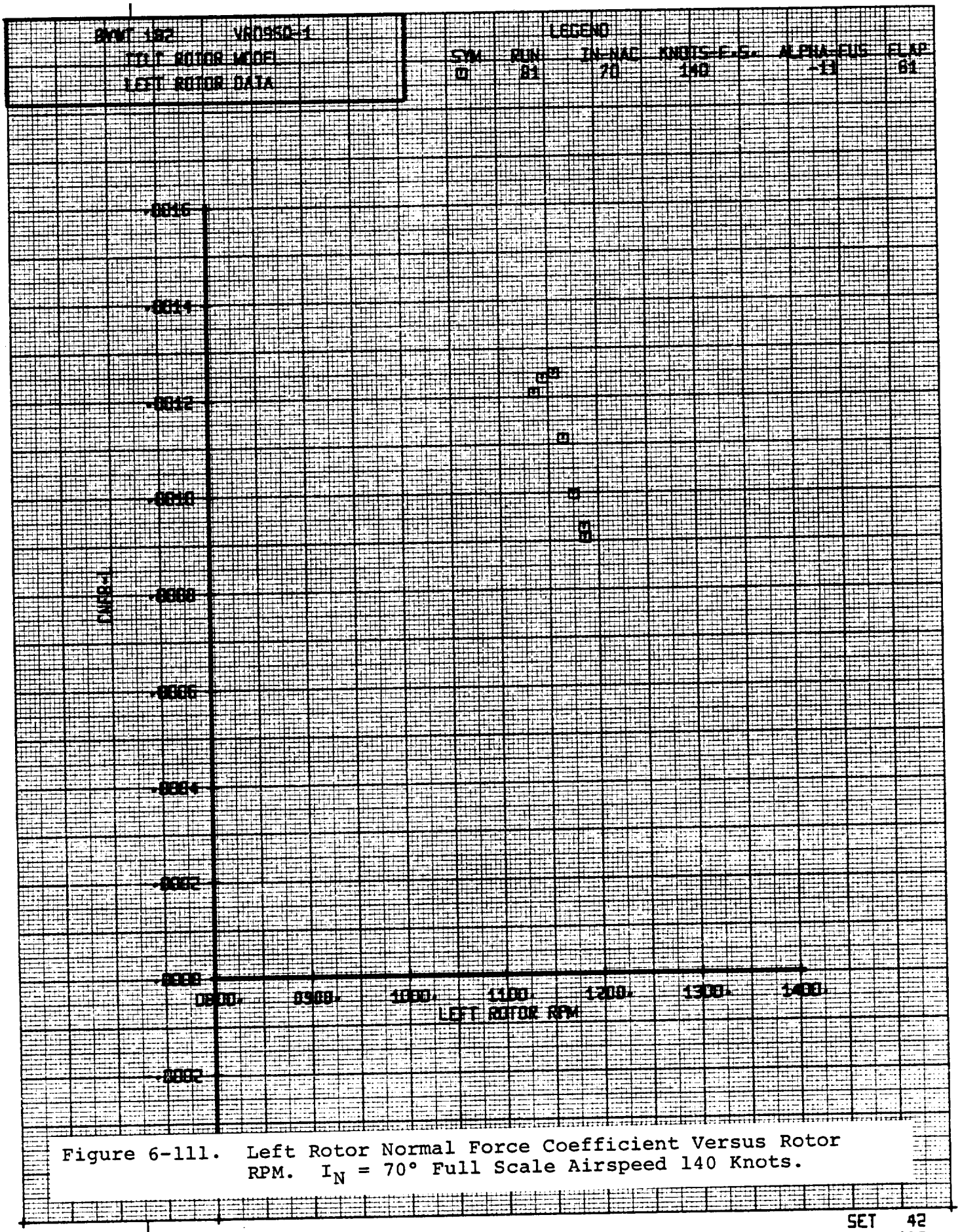


Figure 6-111. Left Rotor Normal Force Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

ET 42
182

SET 42
BVWT 182

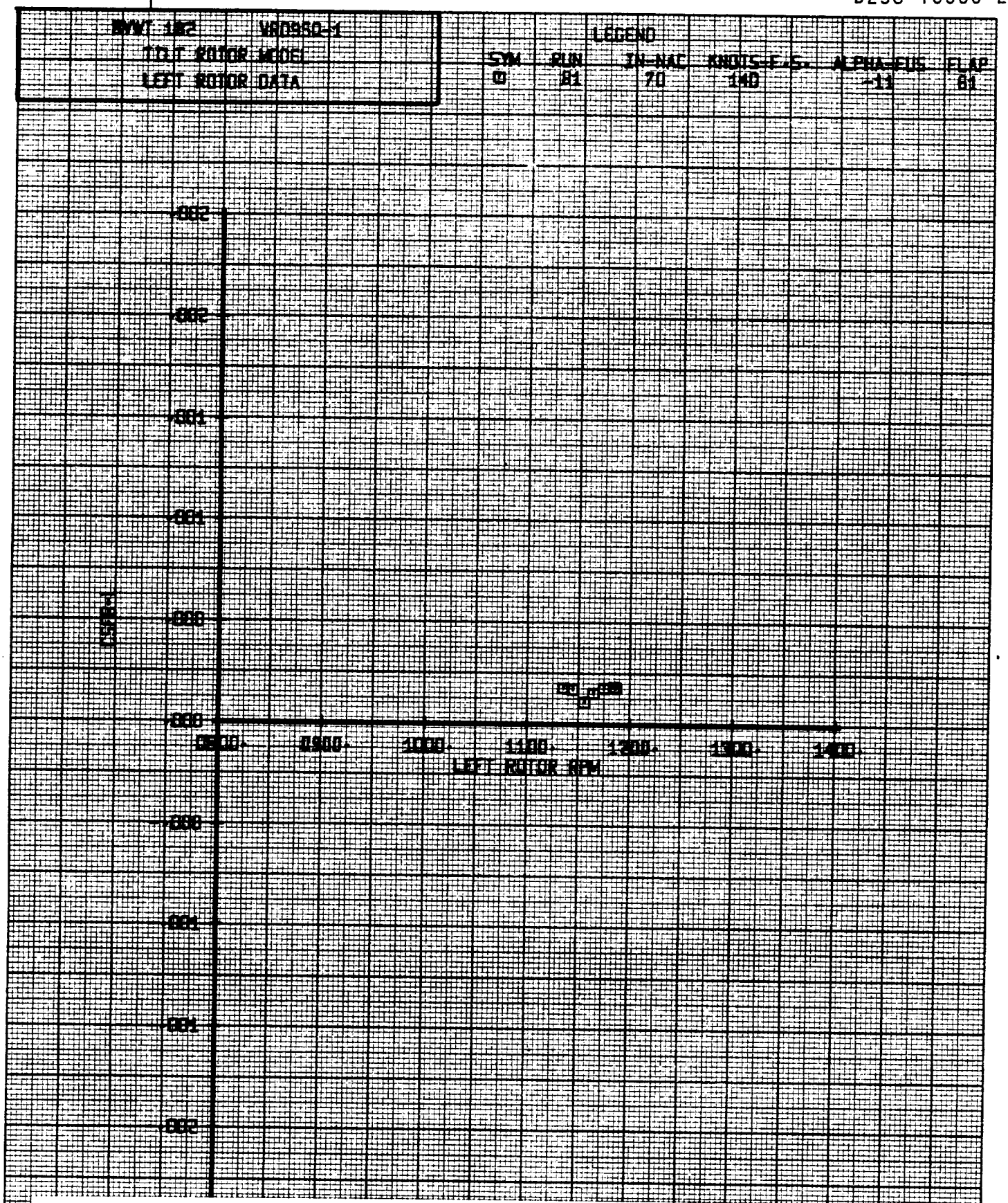


Figure 6-112. Left Rotor Side Force Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

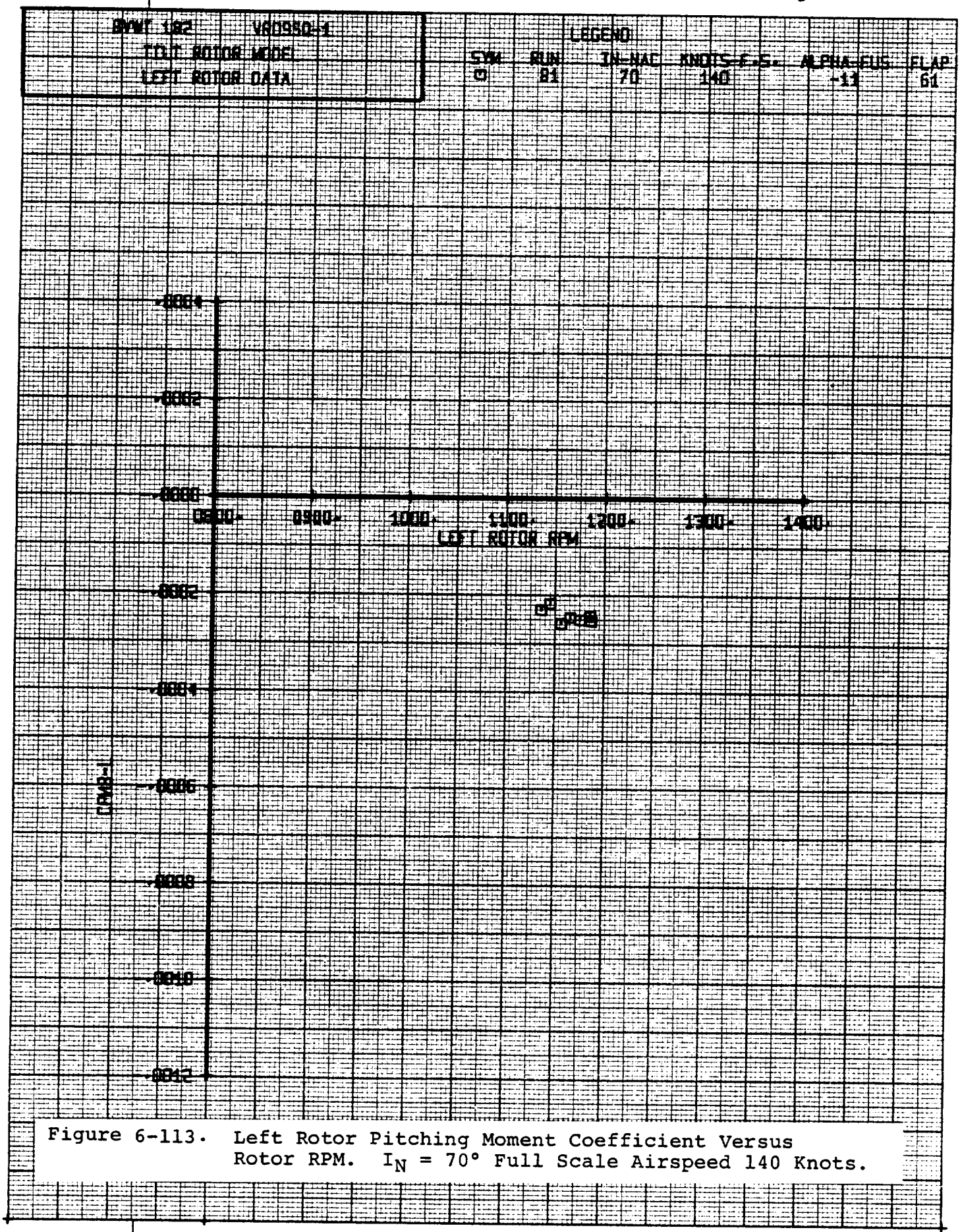


Figure 6-113. Left Rotor Pitching Moment Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

ET 42
182

SET 42
BVWT 182

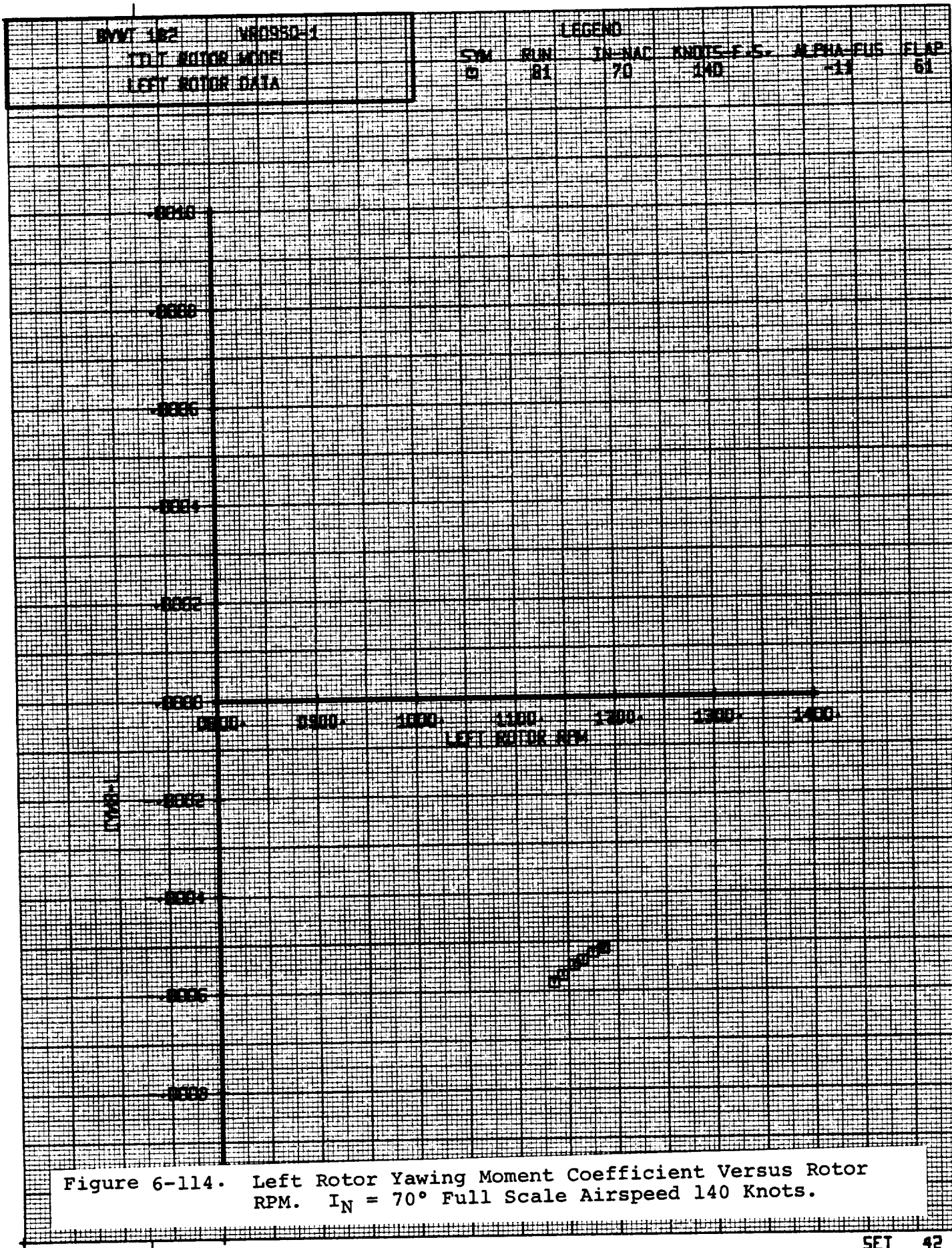


Figure 6-114. Left Rotor Yawing Moment Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

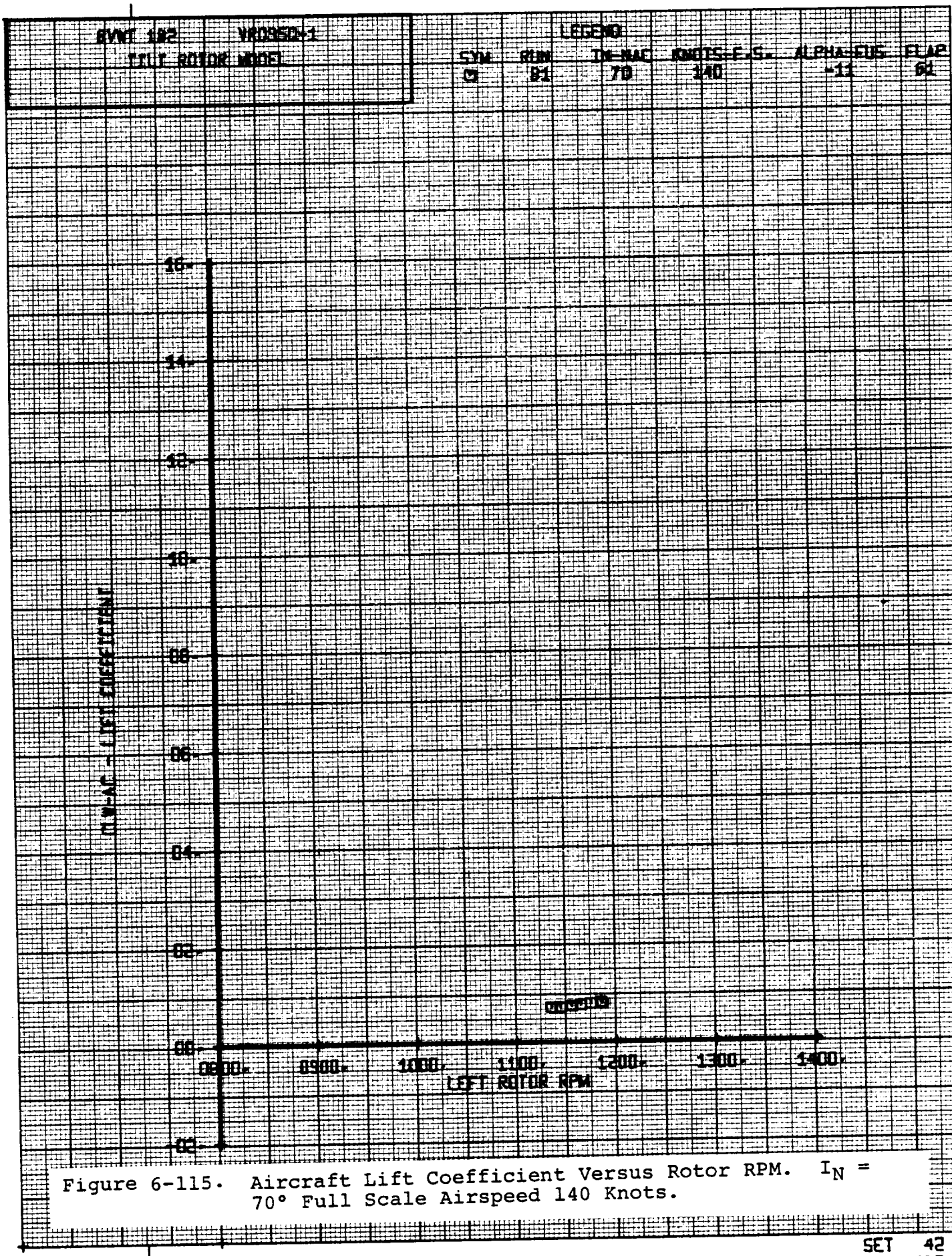


Figure 6-115. Aircraft Lift Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

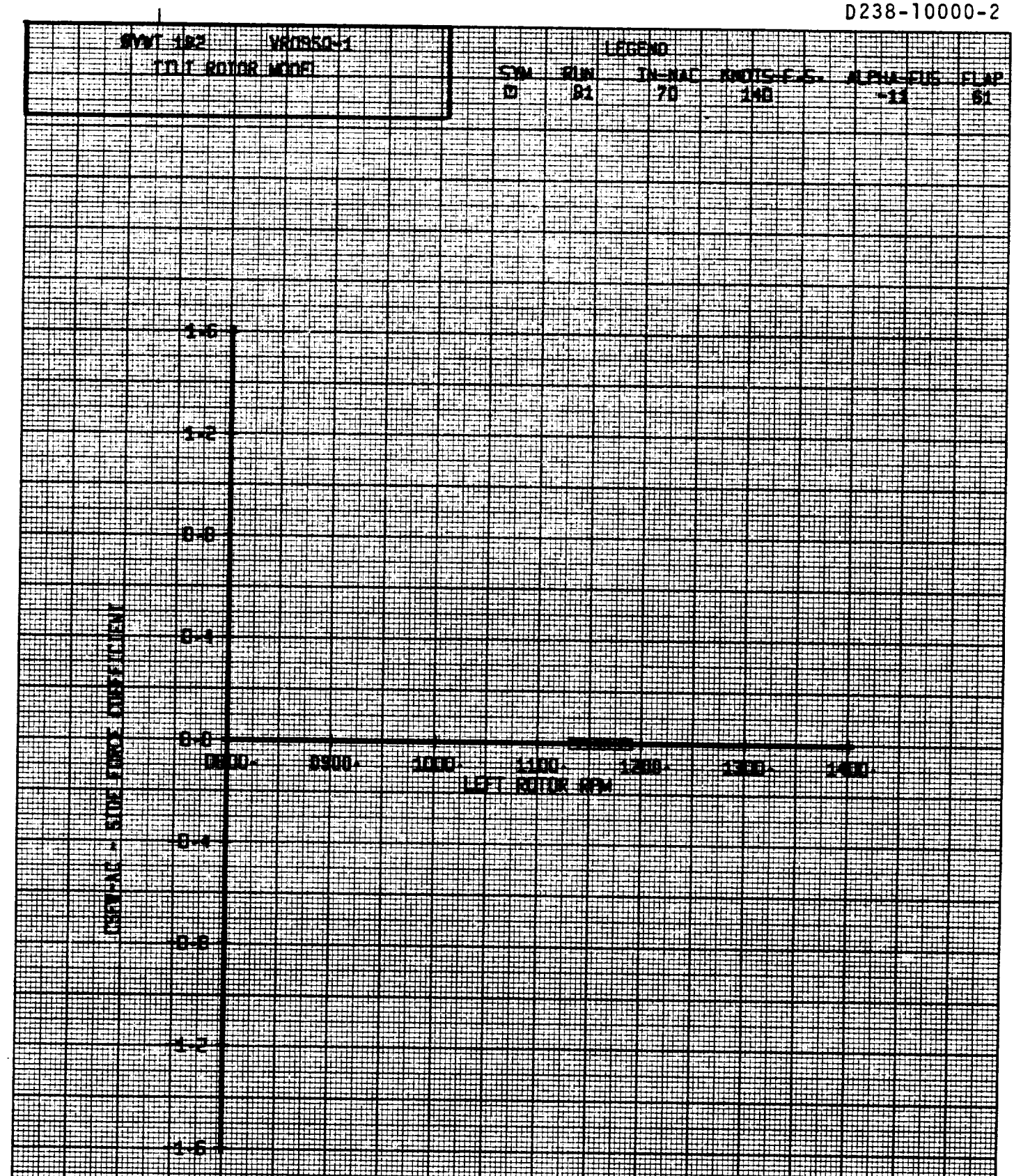


Figure 6-116. Aircraft Side Force Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

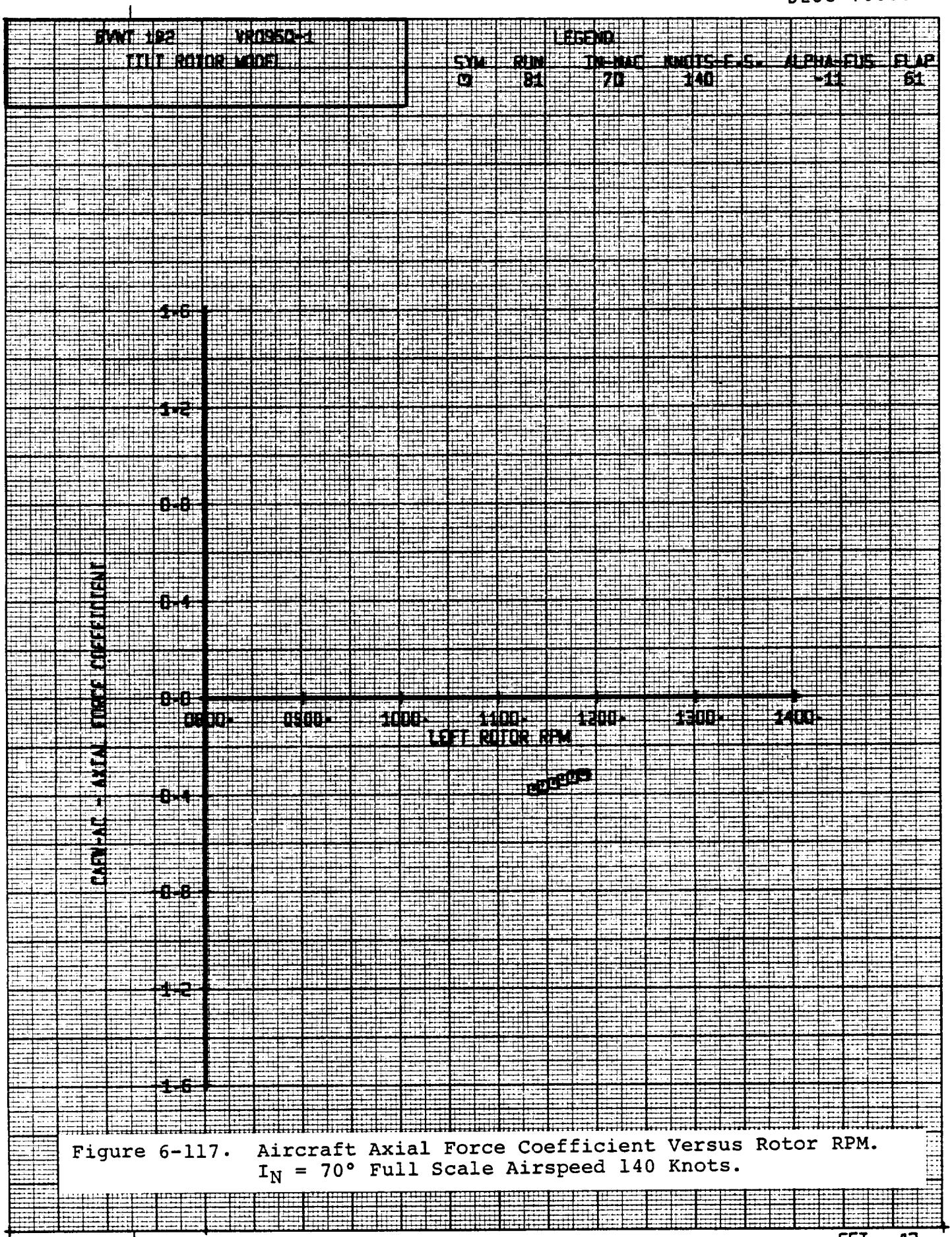


Figure 6-117. Aircraft Axial Force Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

ET 42
W 182

SET 42
BWT 182

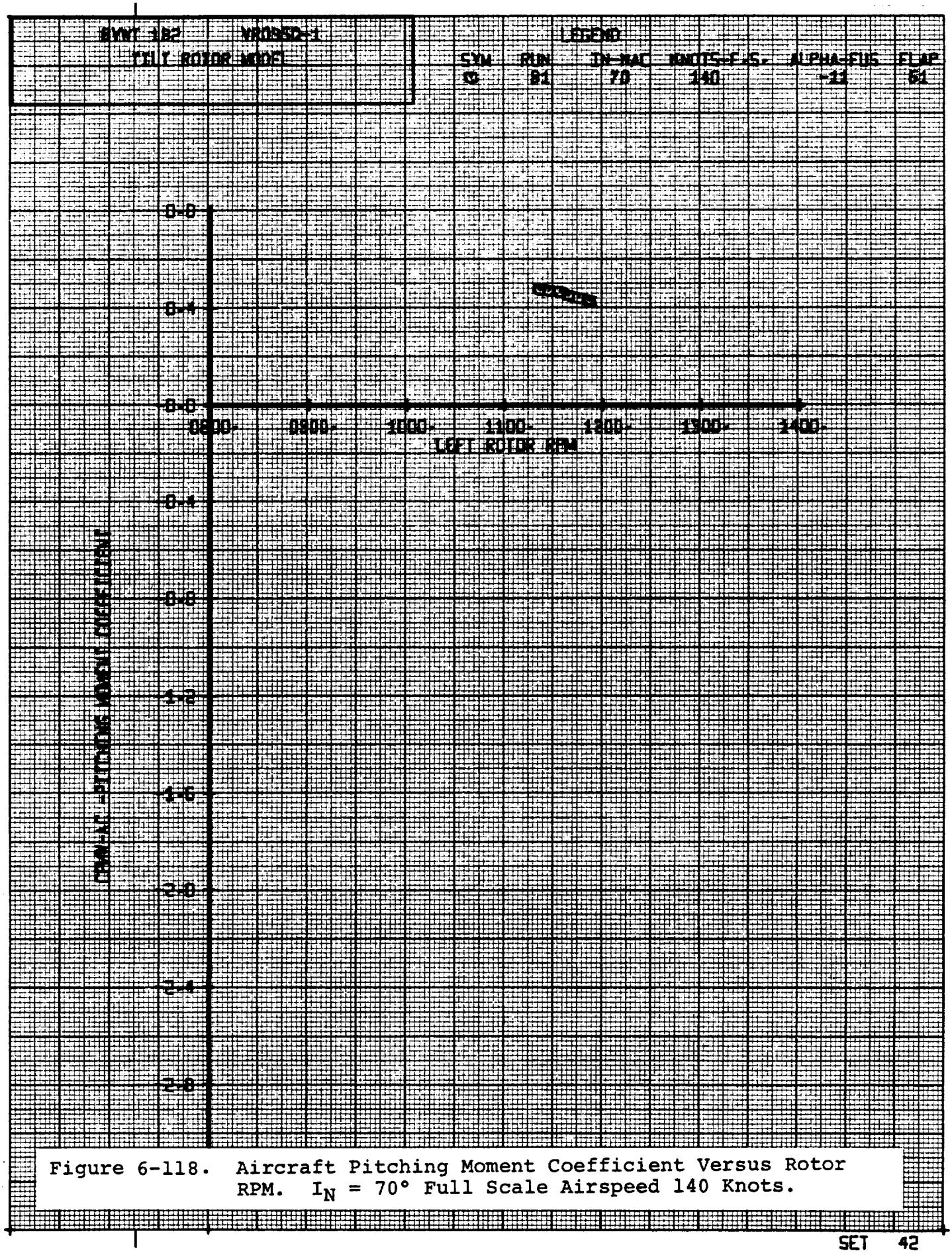


Figure 6-118. Aircraft Pitching Moment Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

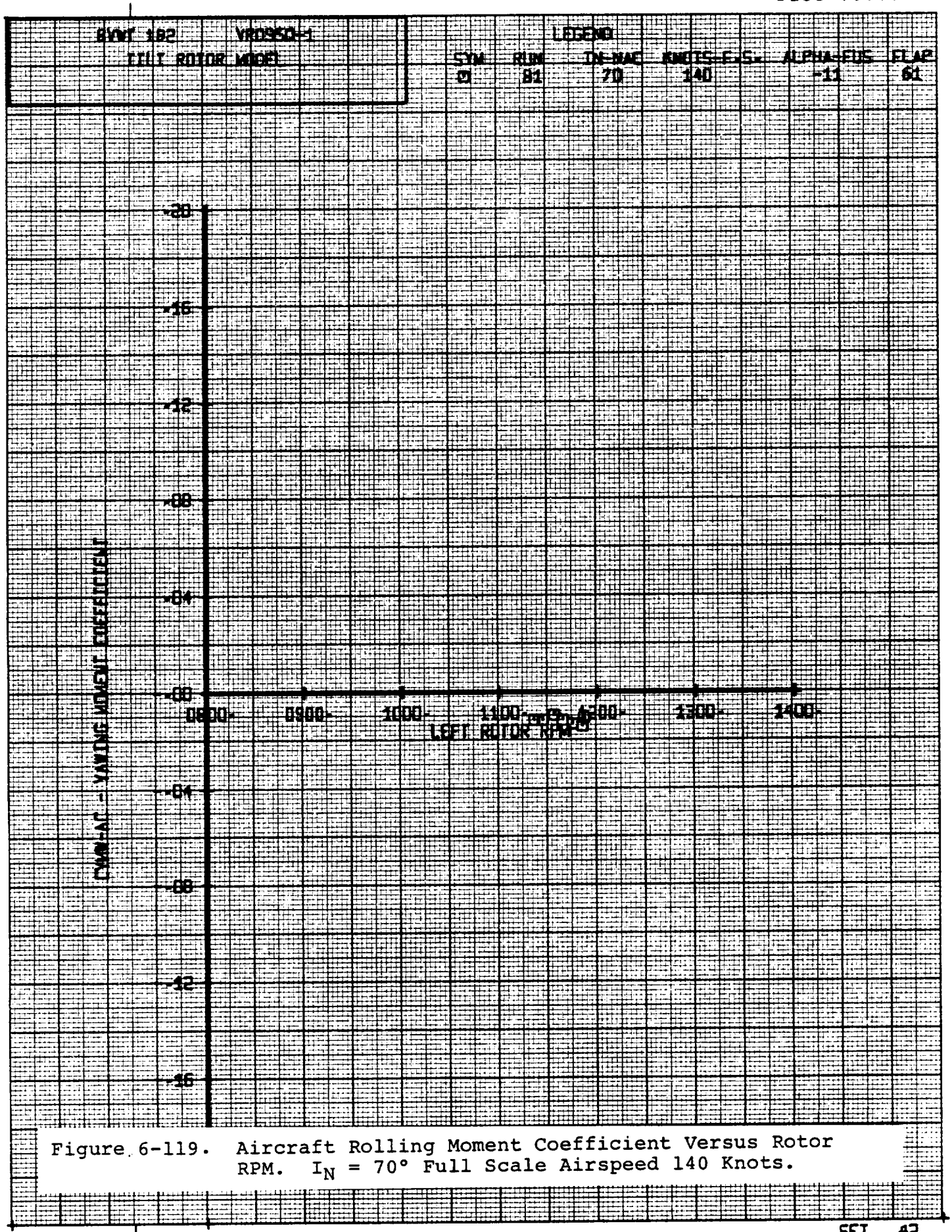


Figure 6-119. Aircraft Rolling Moment Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

SET 42
BVWT 182

SET 42
BVWT 182

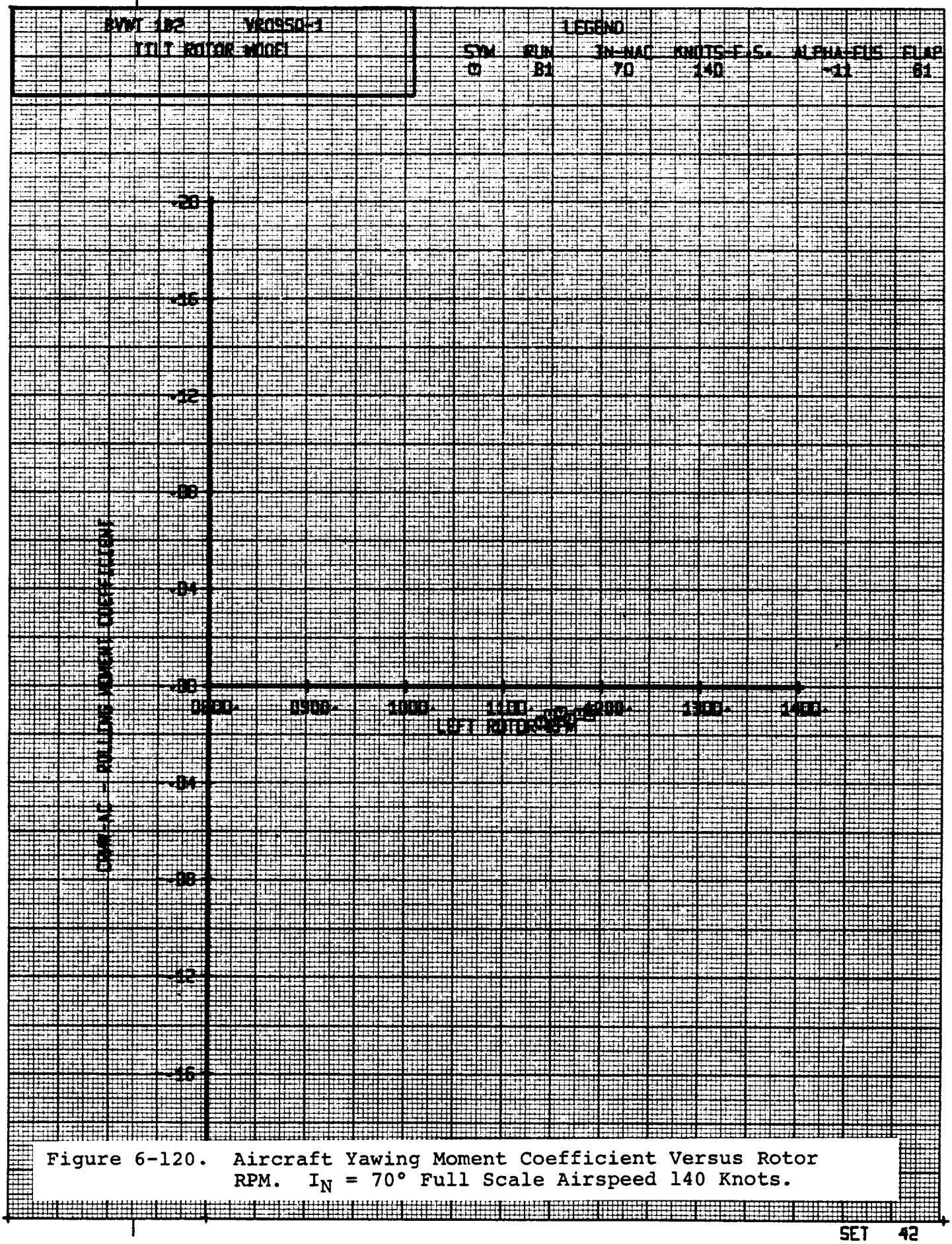


Figure 6-120. Aircraft Yawing Moment Coefficient Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

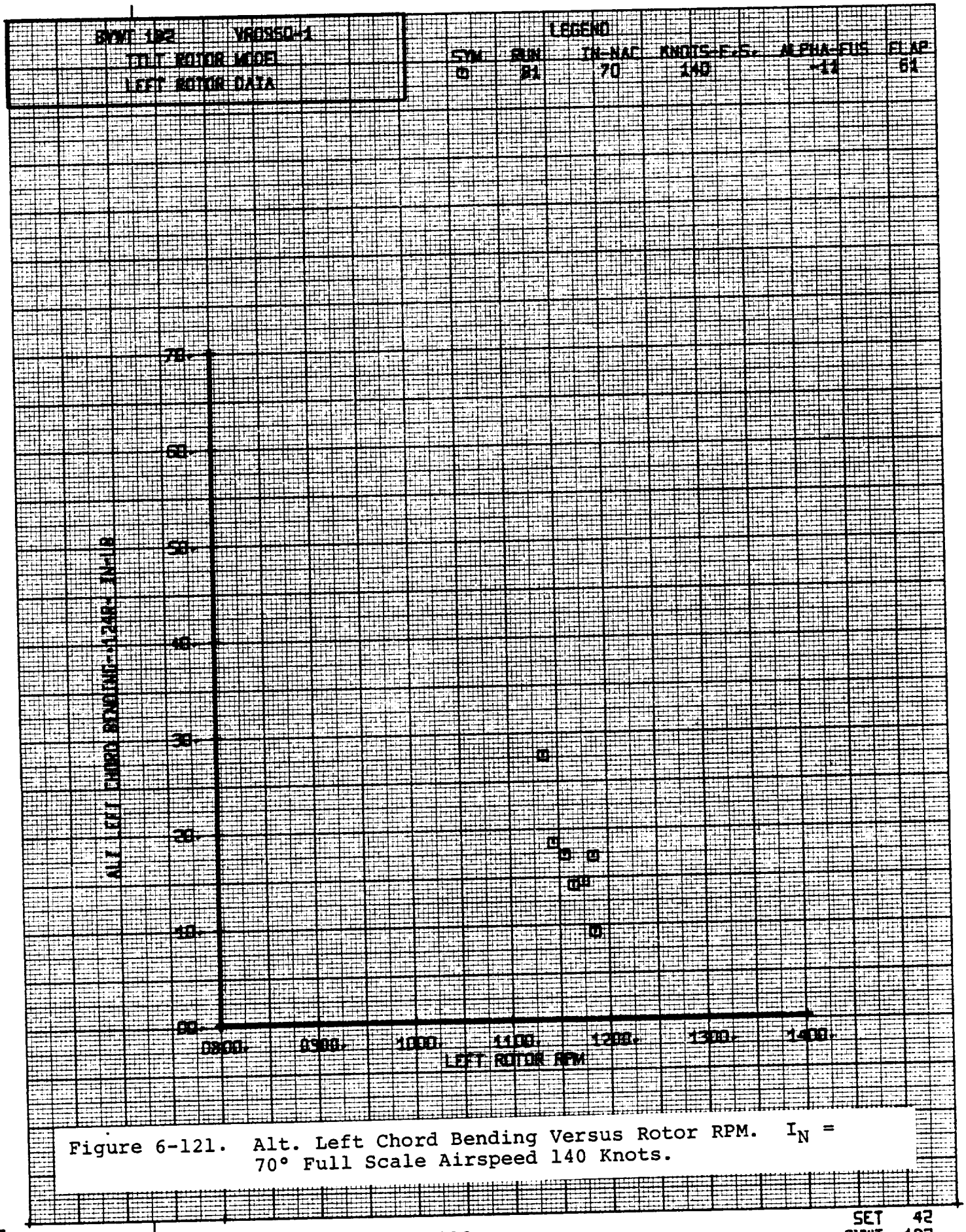


Figure 6-121. Alt. Left Chord Bending Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

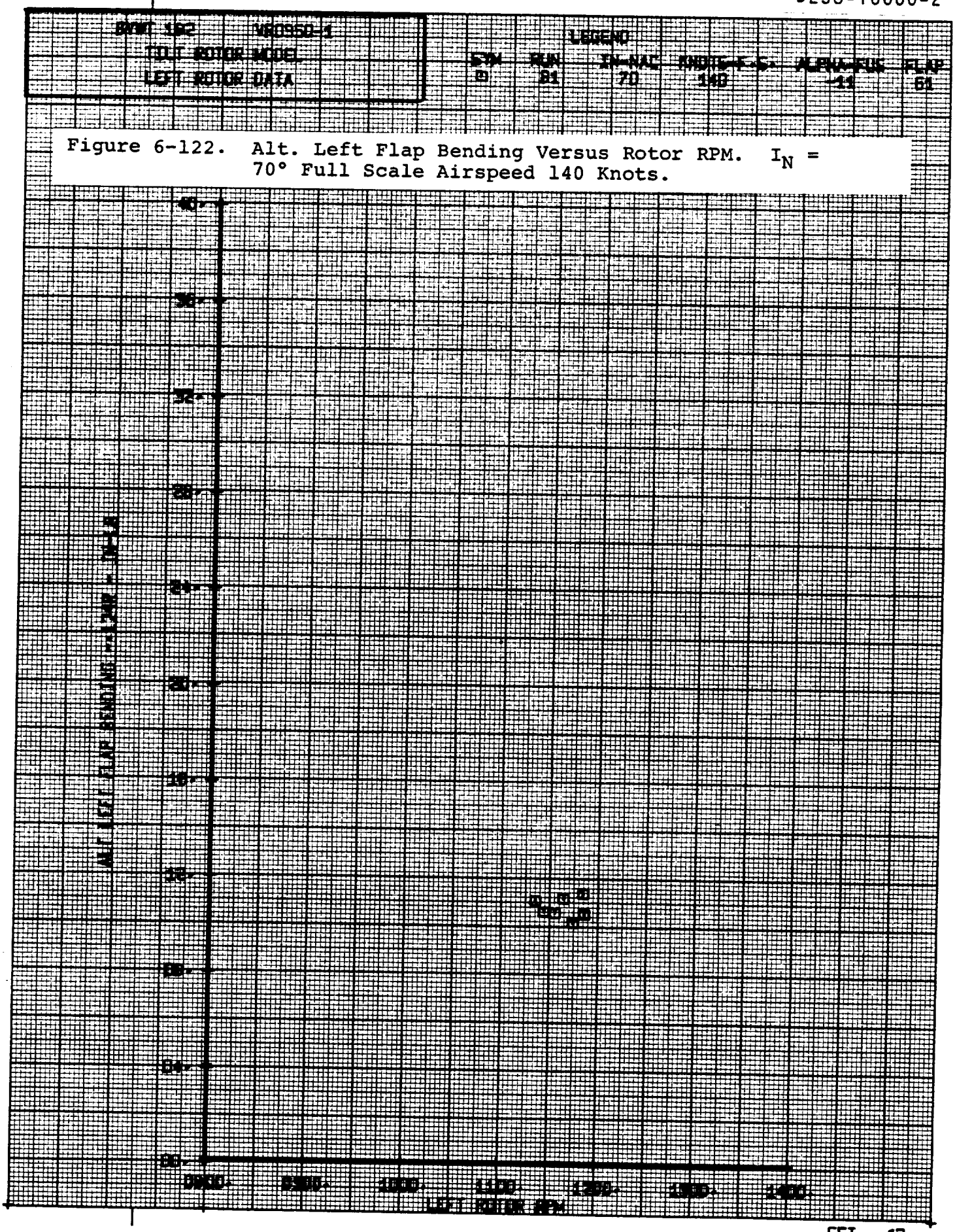


Figure 6-122. Alt. Left Flap Bending Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

42
182

SET 42
BVWT 182

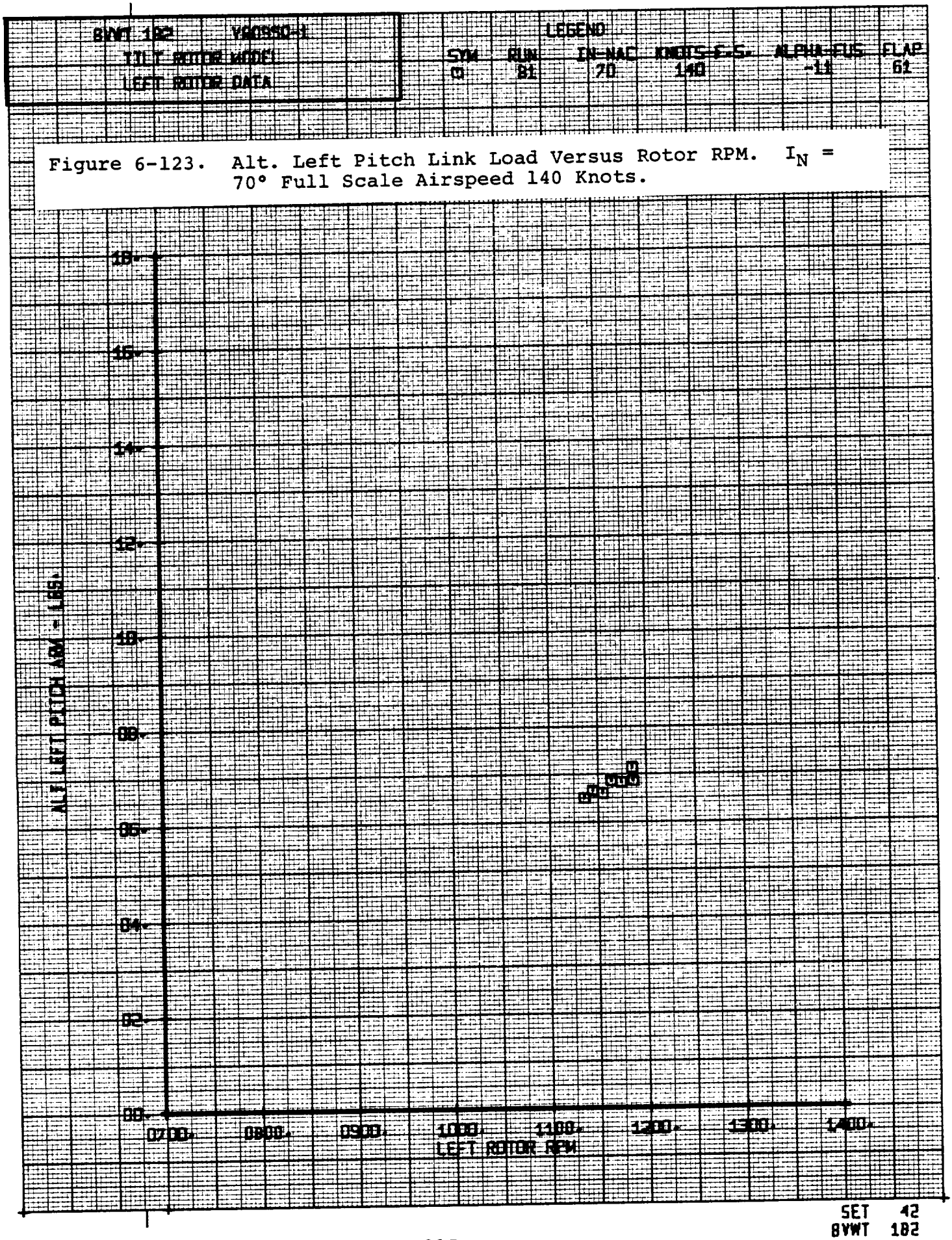


Figure 6-123. Alt. Left Pitch Link Load Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

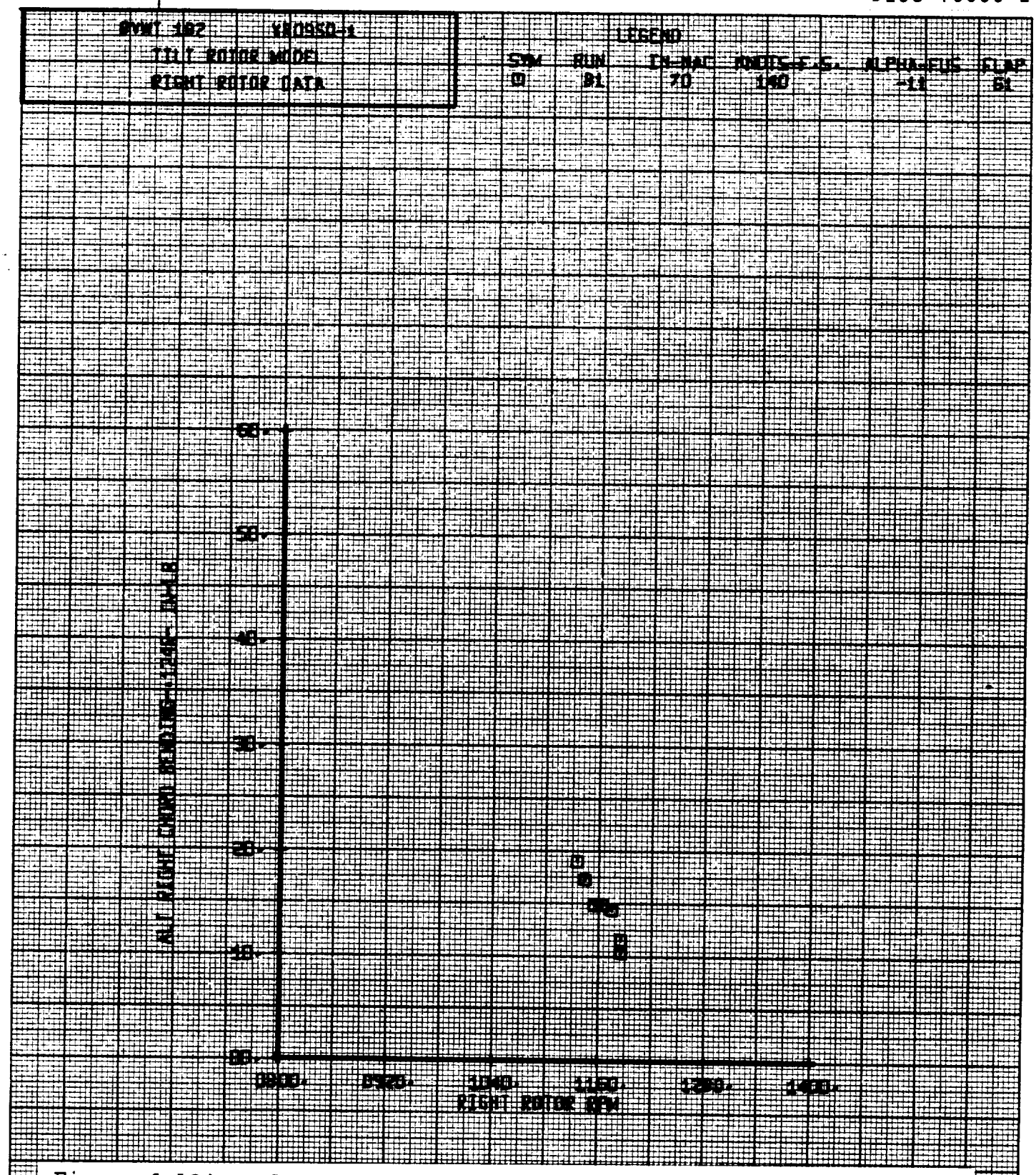


Figure 6-124. Alt. Right Chord Bending Versus Rotor RPM. I_N = 70° Full Scale Airspeed 140 Knots.

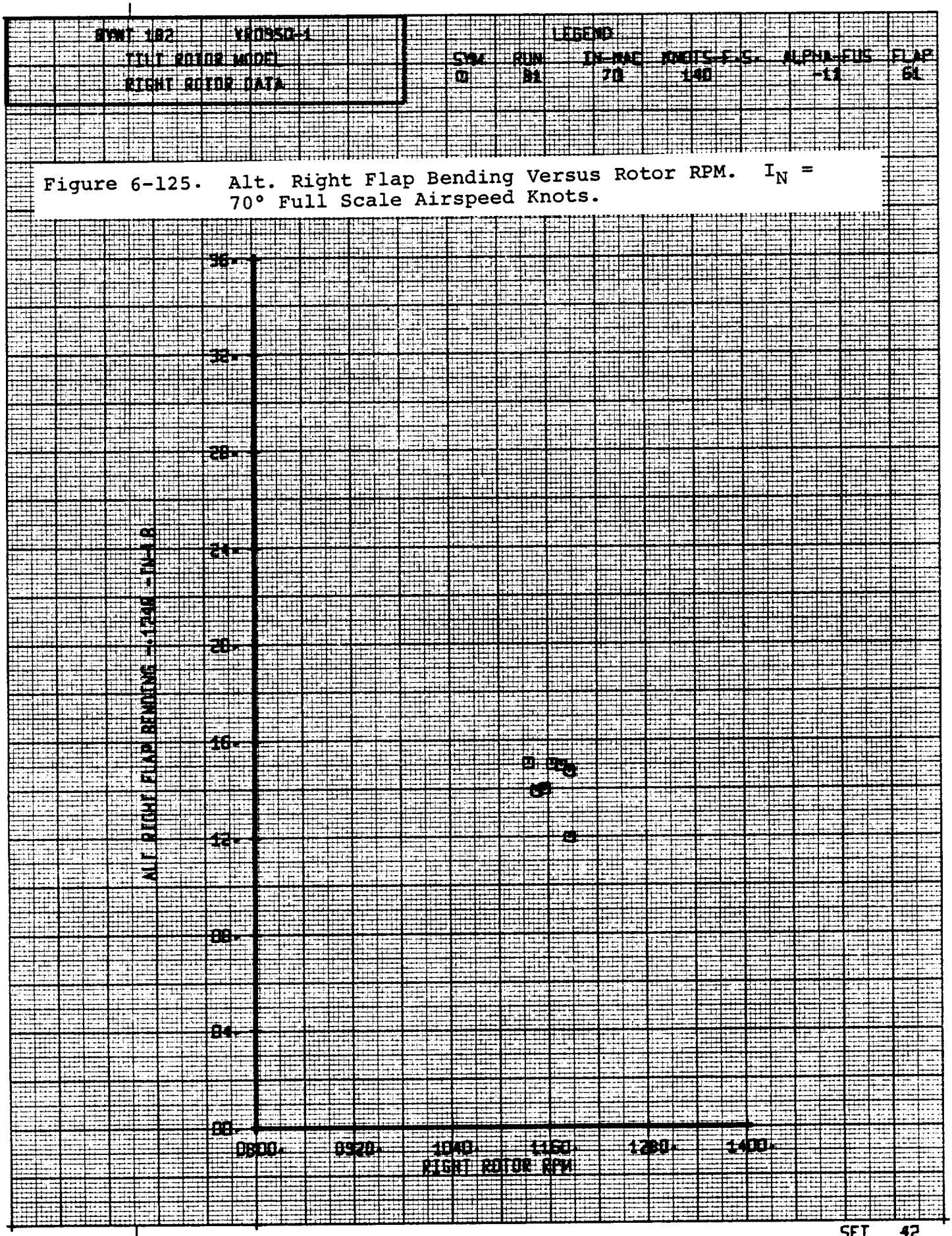


Figure 6-125. Alt. Right Flap Bending Versus Rotor RPM. I_N = 70° Full Scale Airspeed Knots.

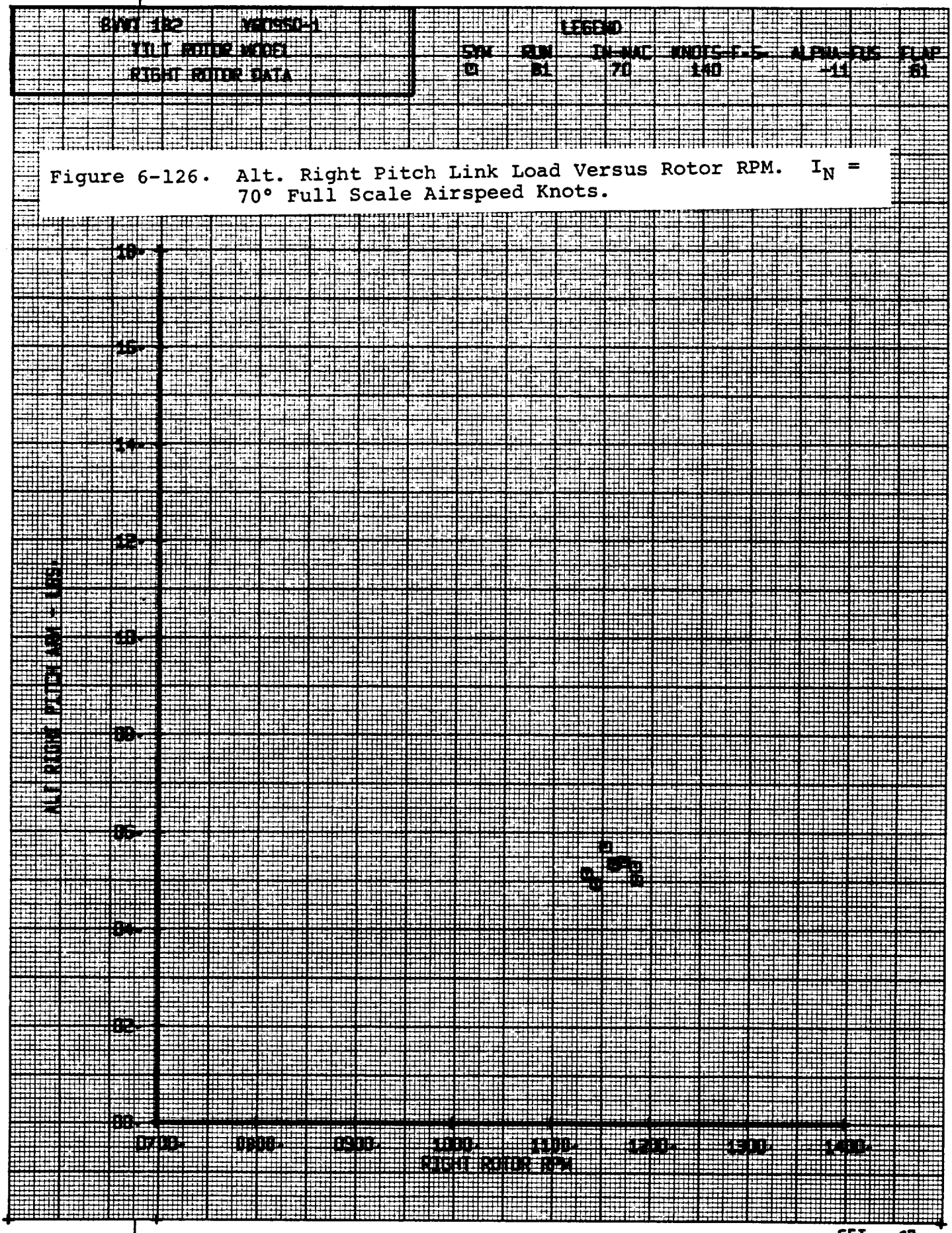


Figure 6-126. Alt. Right Pitch Link Load Versus Rotor RPM. I_N = 70° Full Scale Airspeed Knots.

$I_N = 50^o$ $V_{FS} = 100$ KTS.

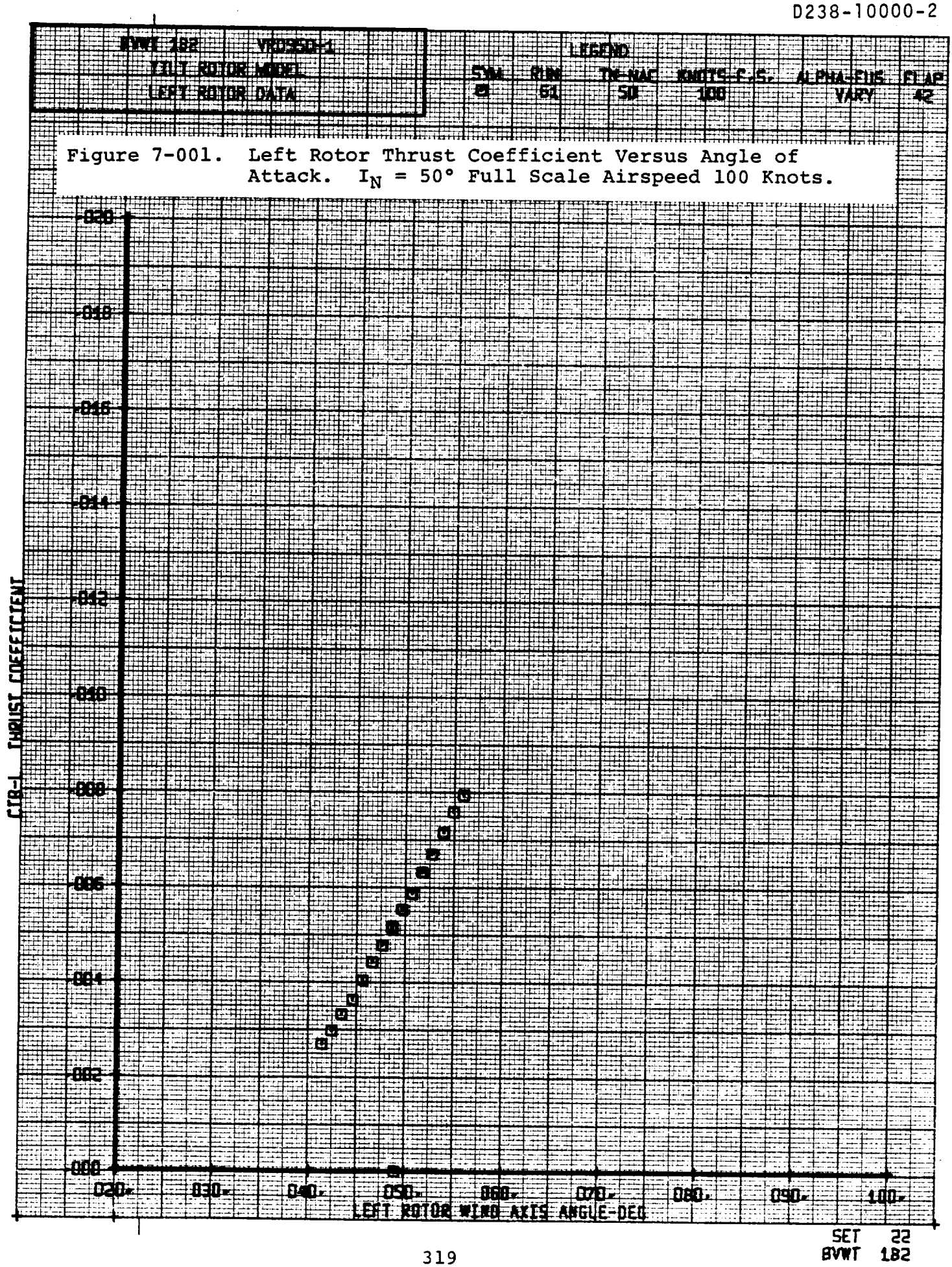


Figure 7-001. Left Rotor Thrust Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

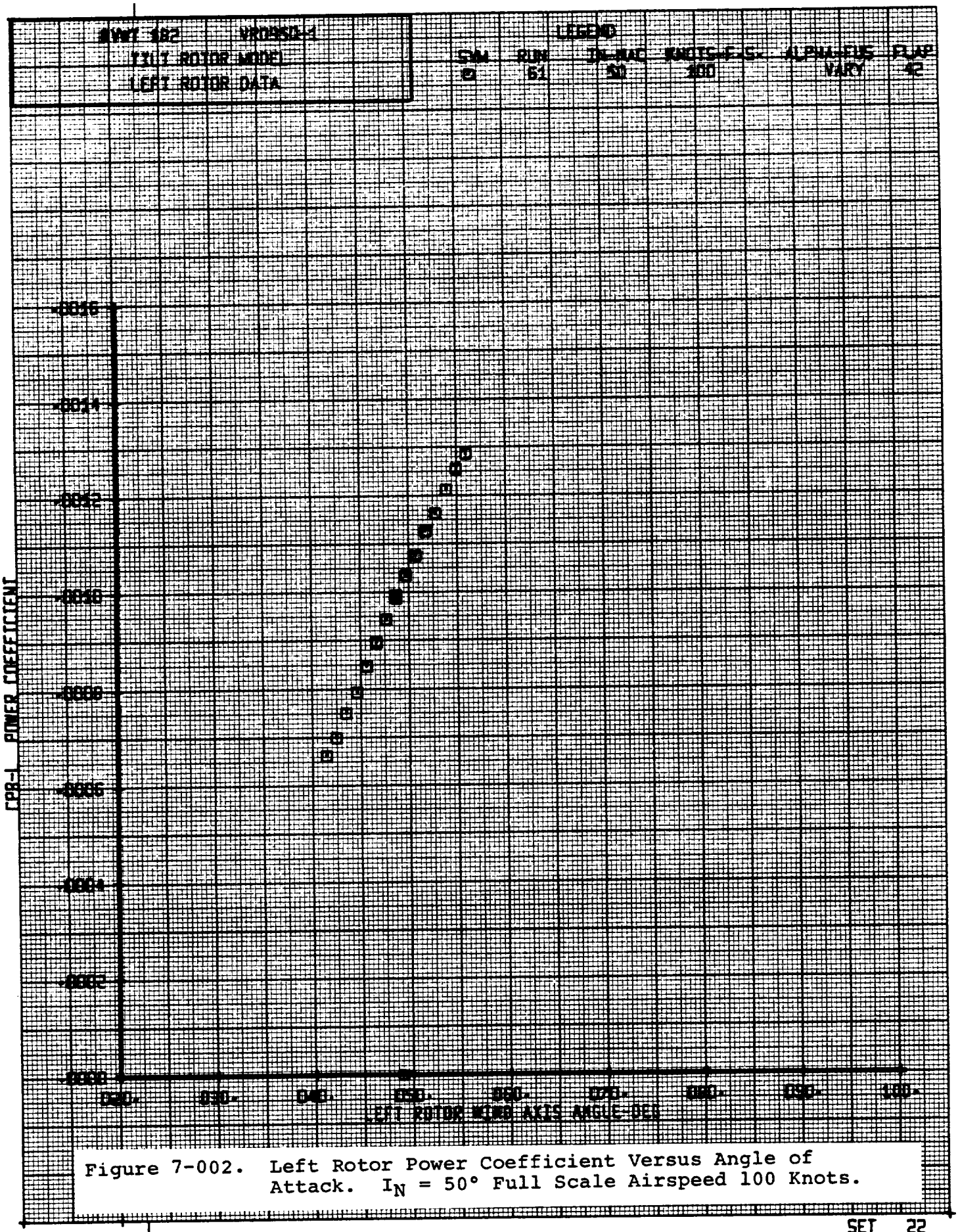


Figure 7-002. Left Rotor Power Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

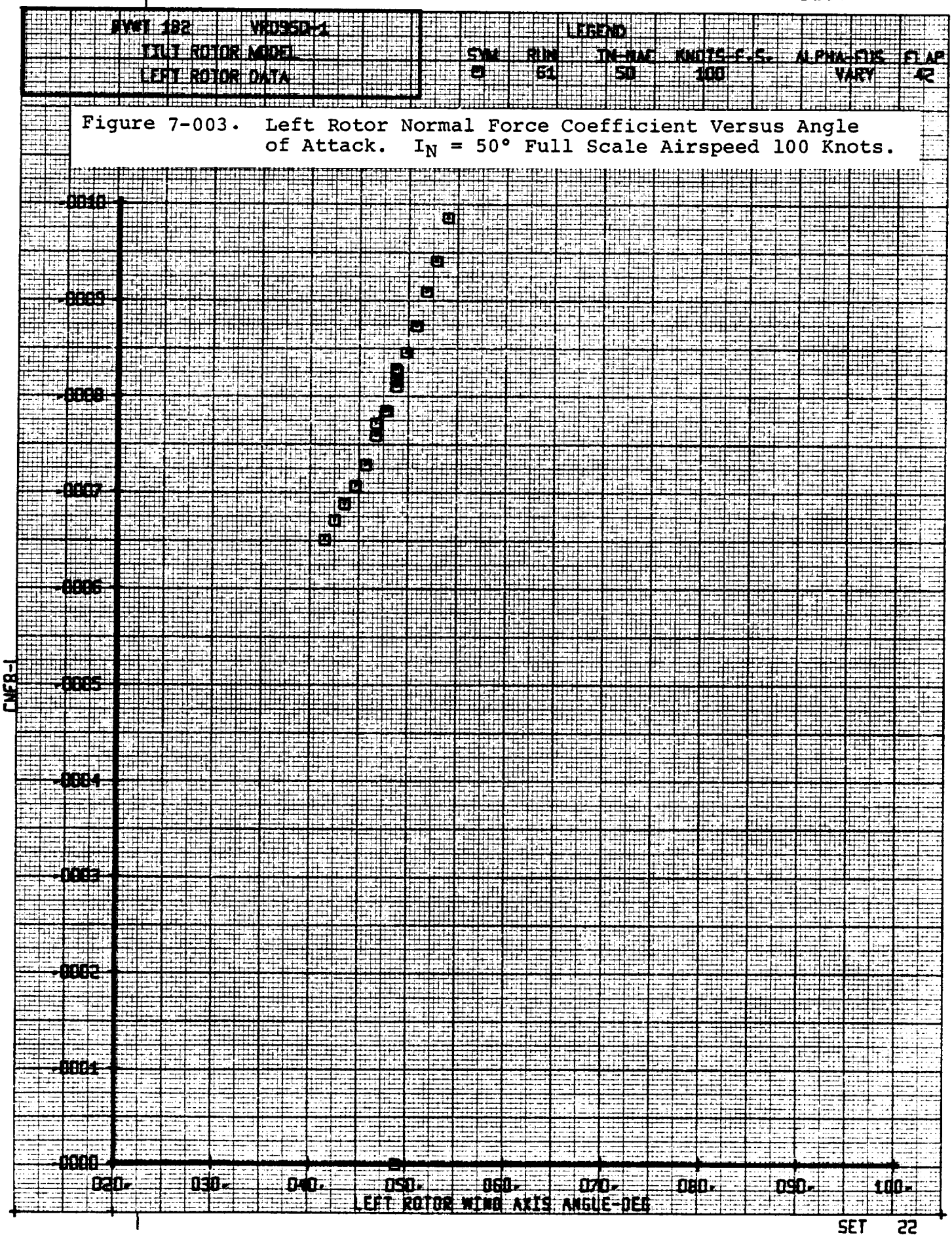


Figure 7-003. Left Rotor Normal Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

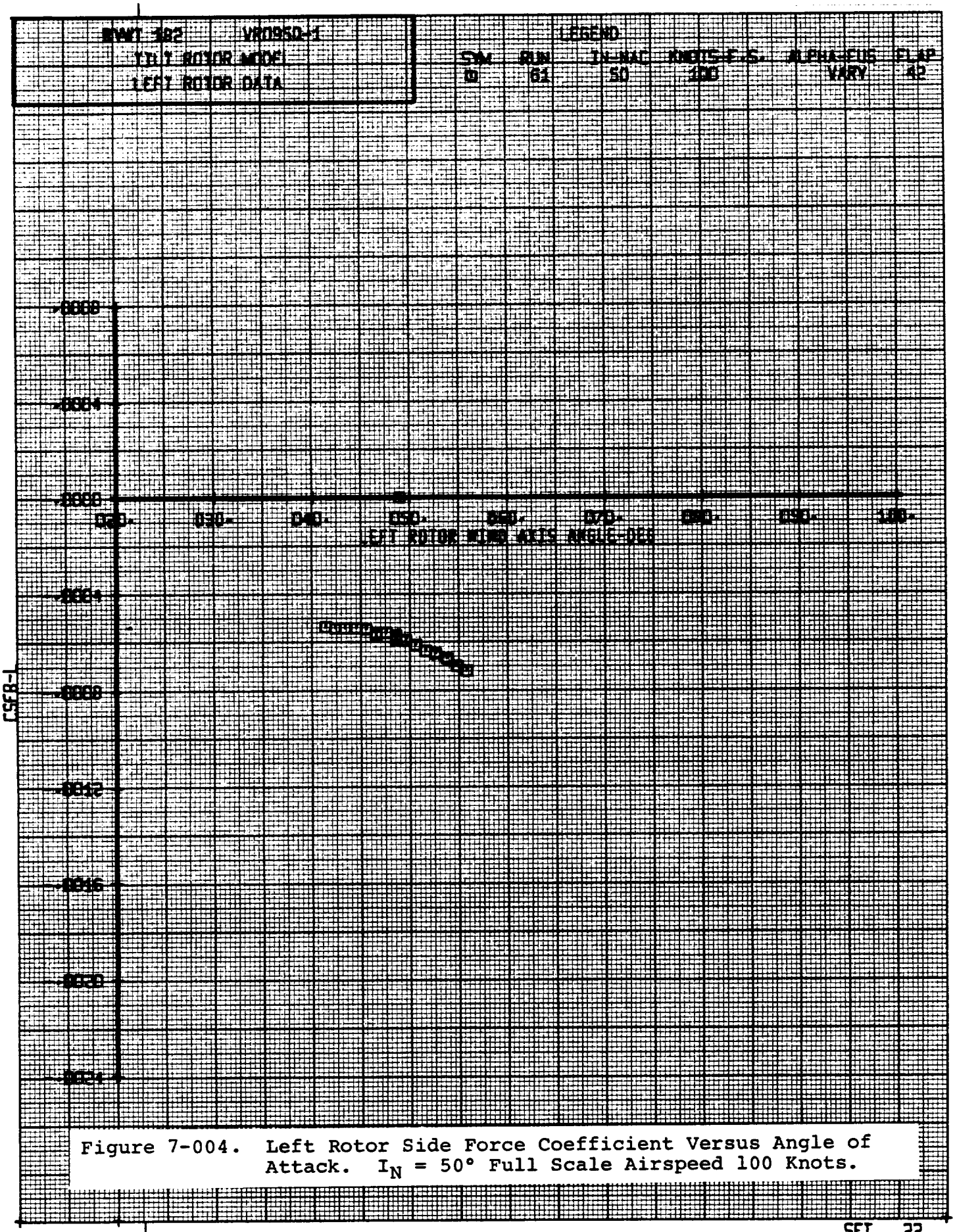


Figure 7-004. Left Rotor Side Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

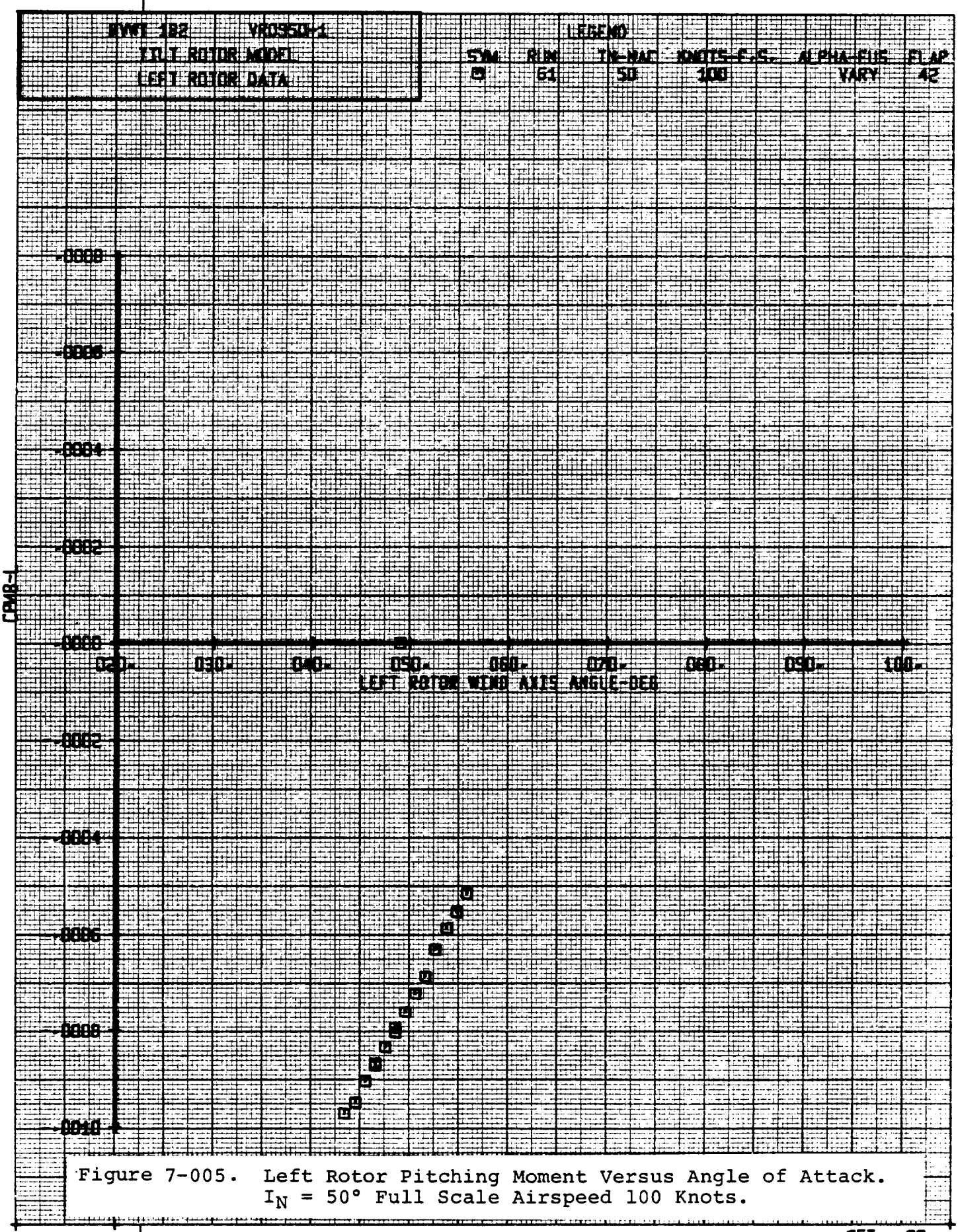


Figure 7-005. Left Rotor Pitching Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

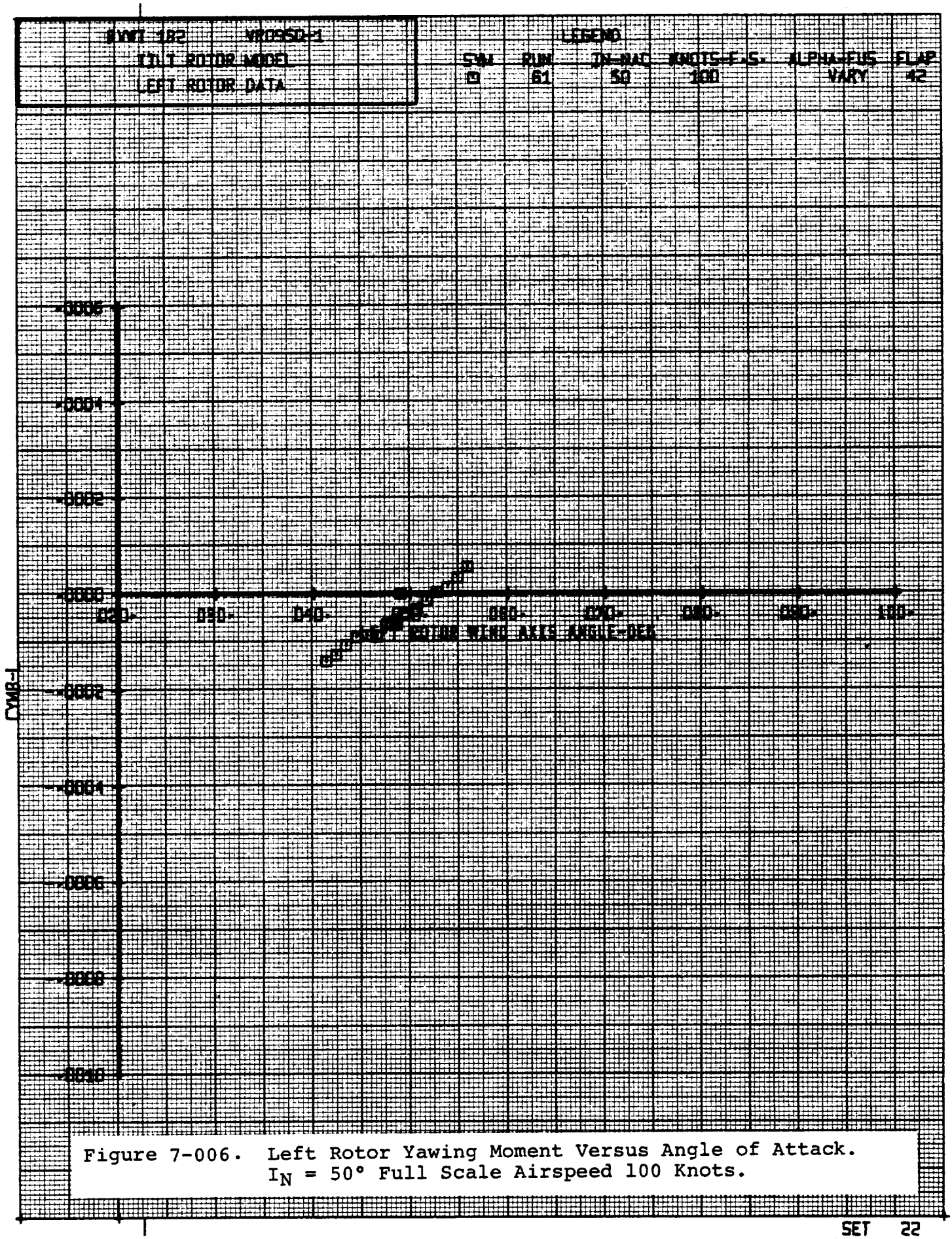


Figure 7-006. Left Rotor Yawing Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

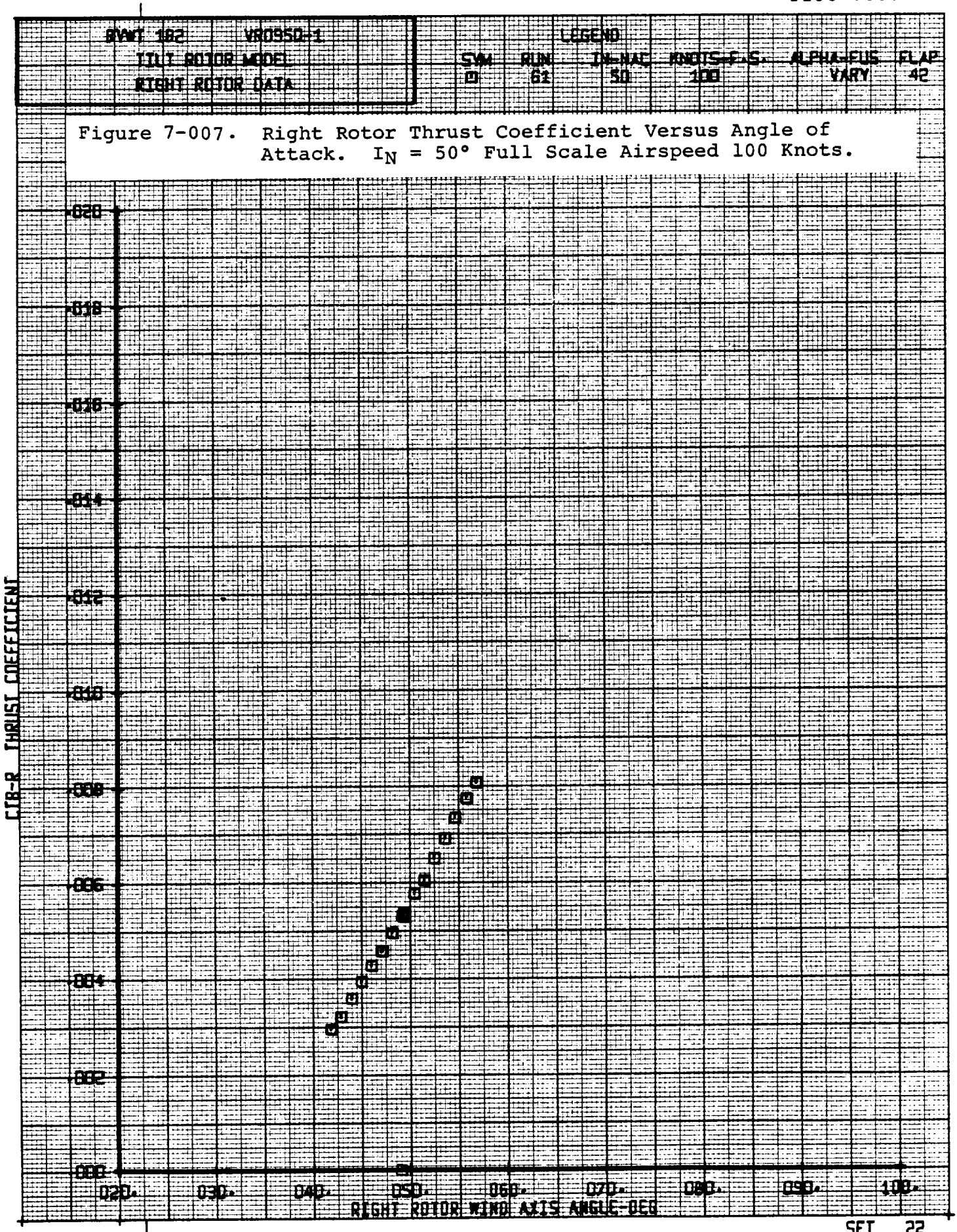


Figure 7-007. Right Rotor Thrust Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

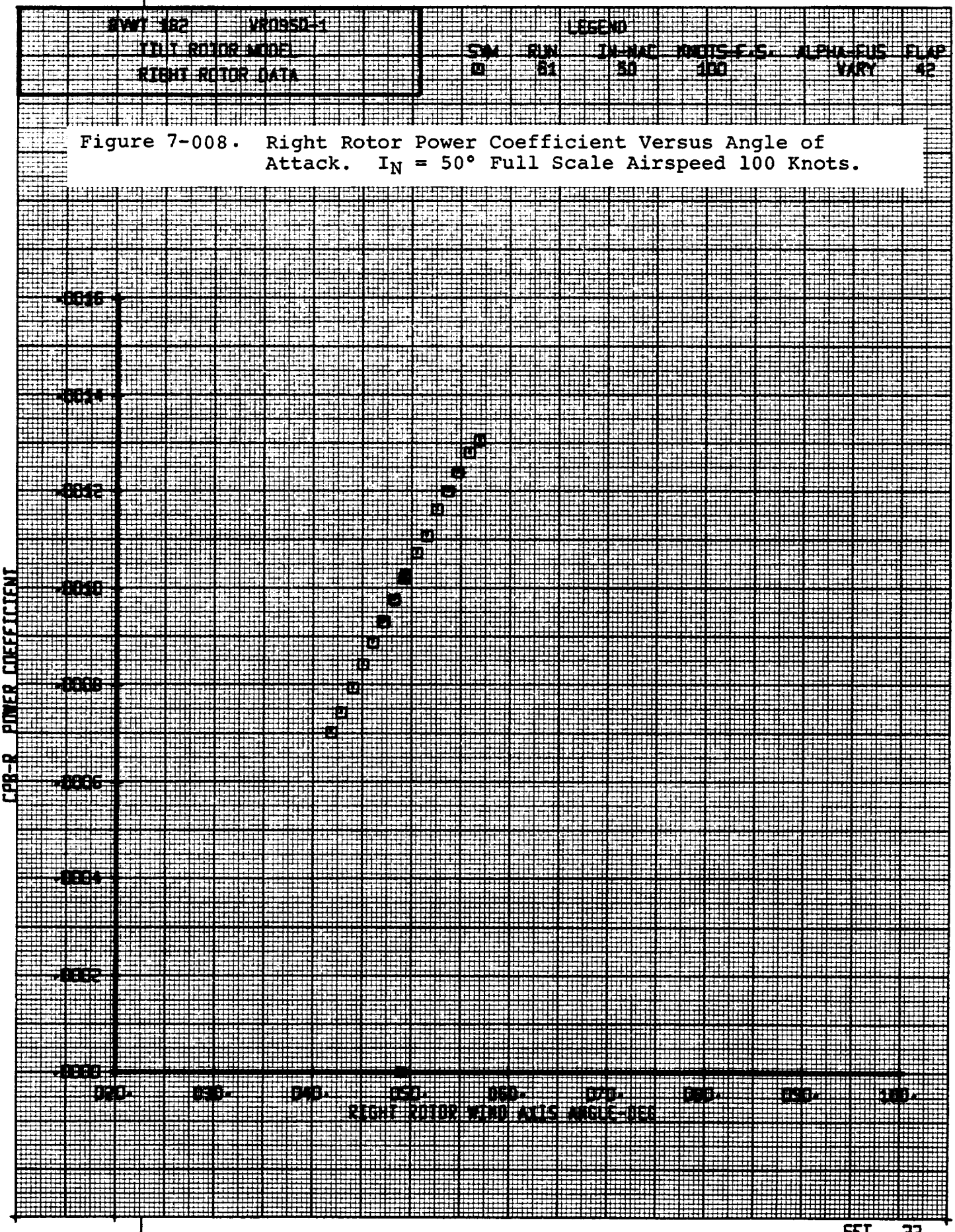


Figure 7-008. Right Rotor Power Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

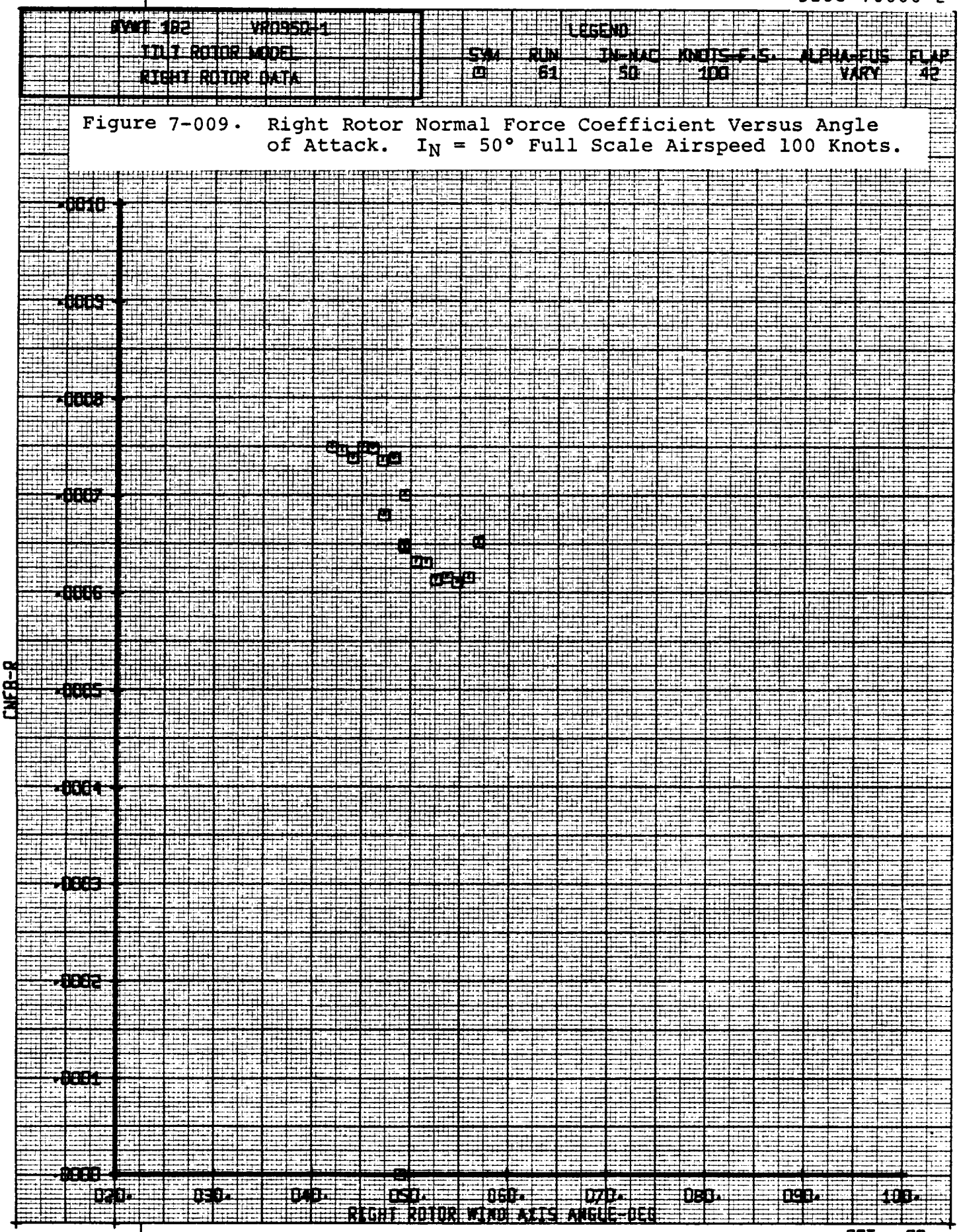


Figure 7-009. Right Rotor Normal Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

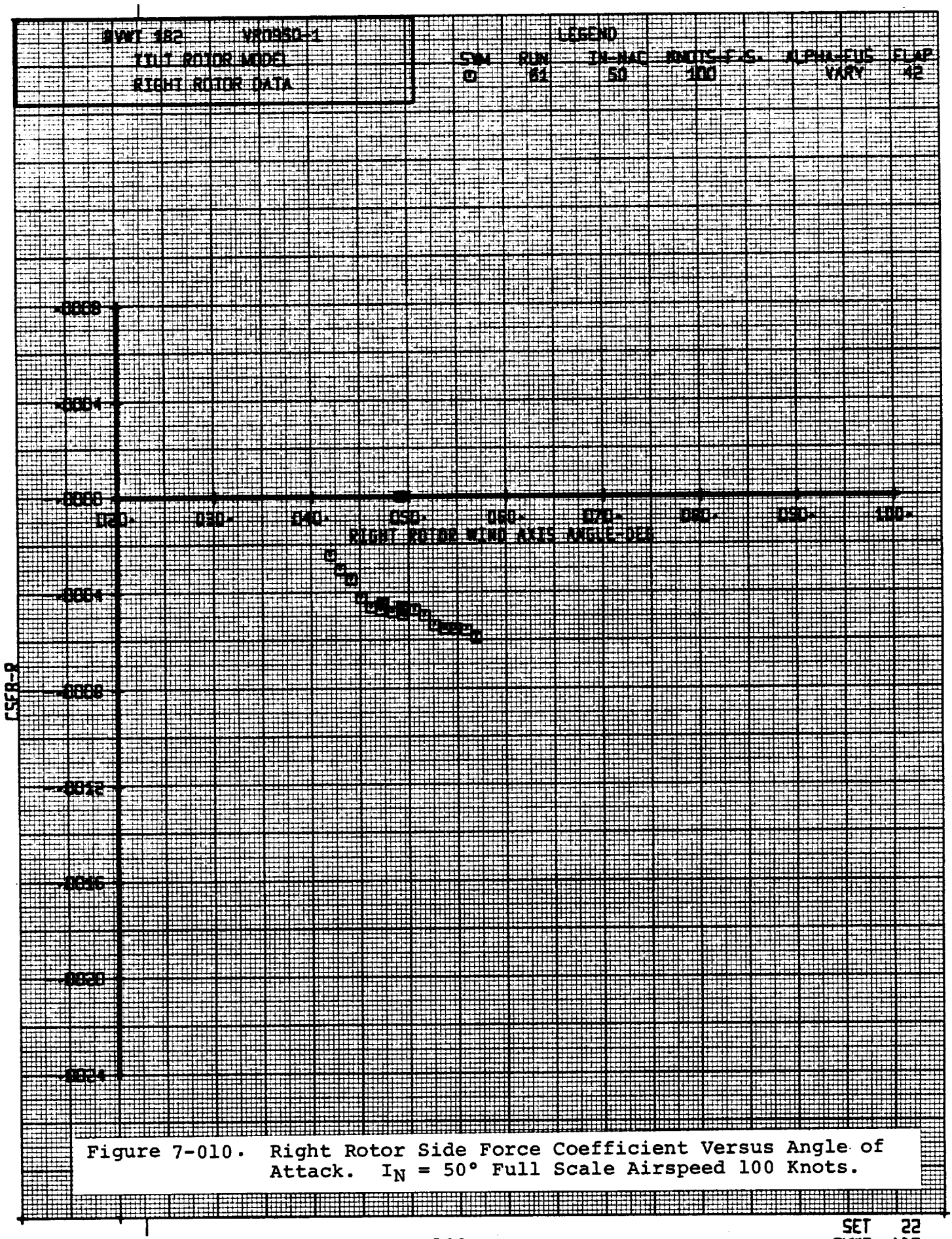


Figure 7-010. Right Rotor Side Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

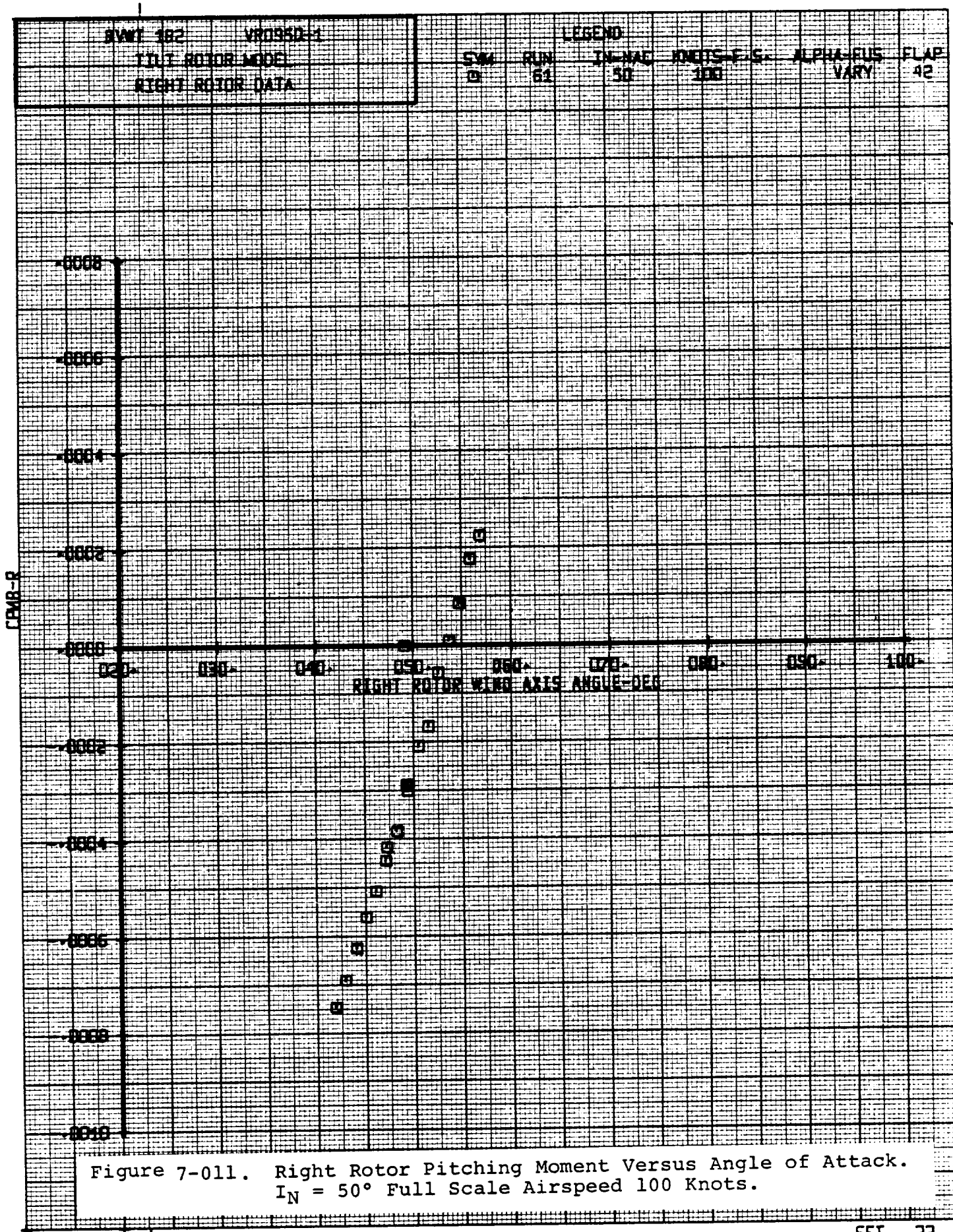


Figure 7-011. Right Rotor Pitching Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

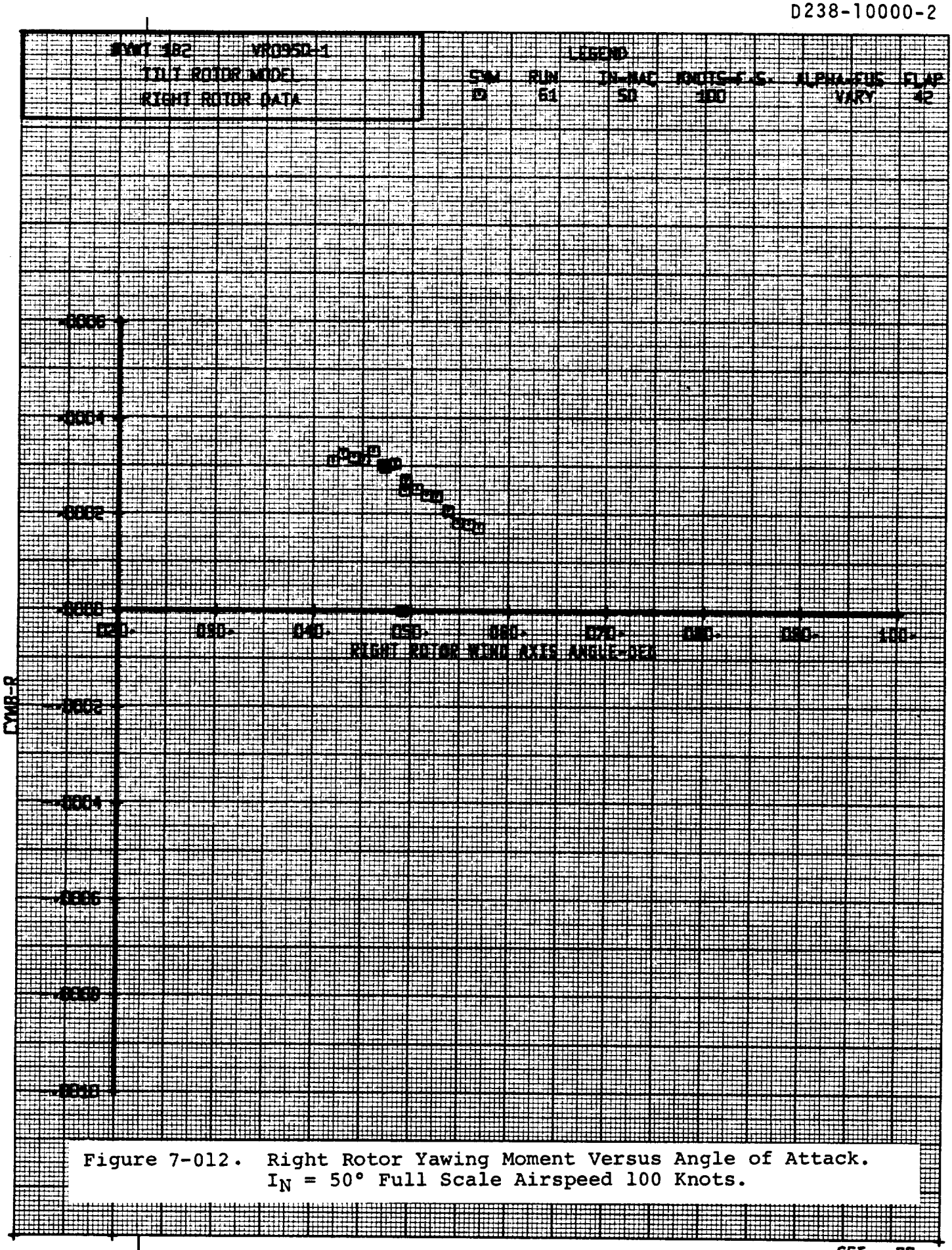


Figure 7-012. Right Rotor Yawing Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

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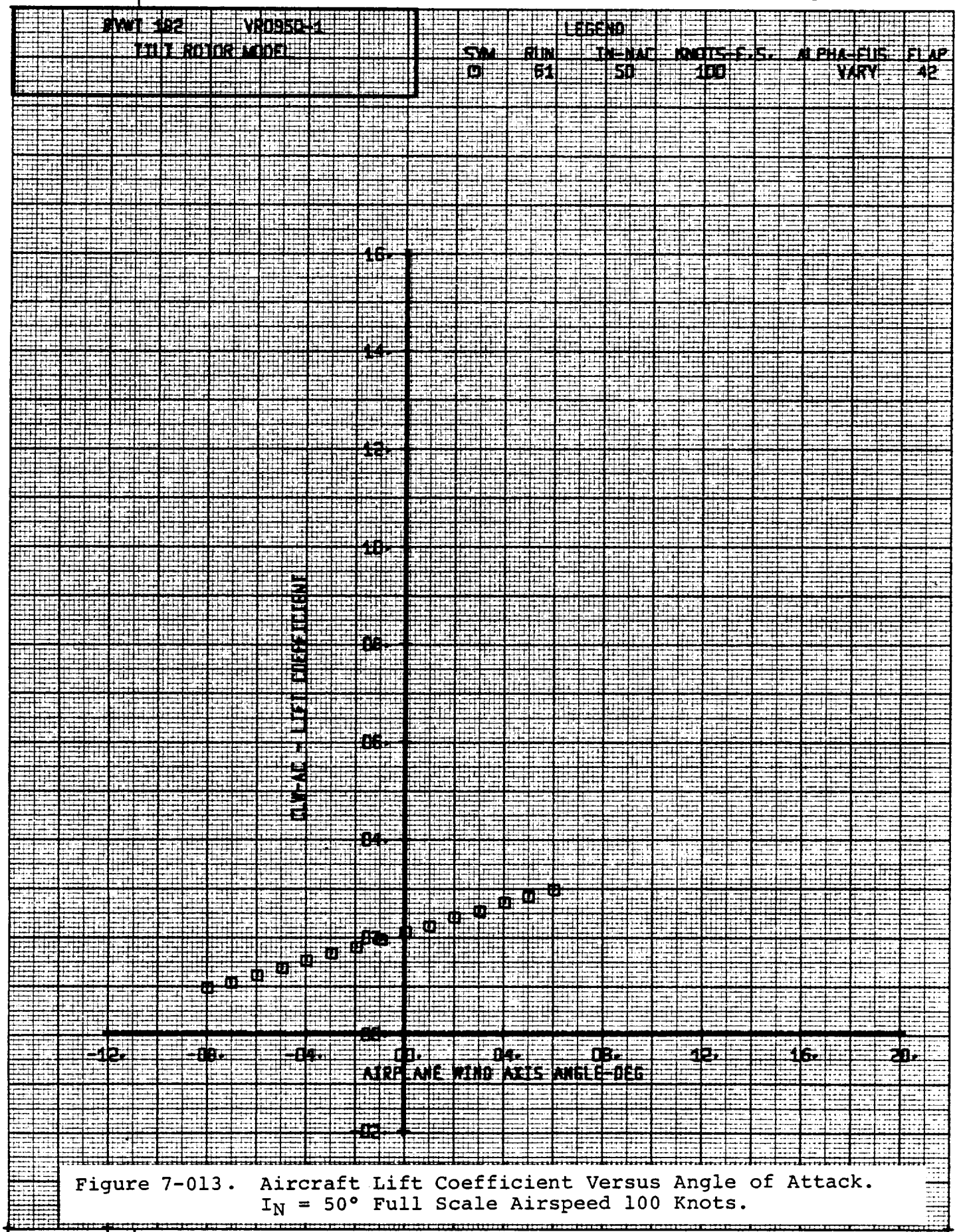


Figure 7-013. Aircraft Lift Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

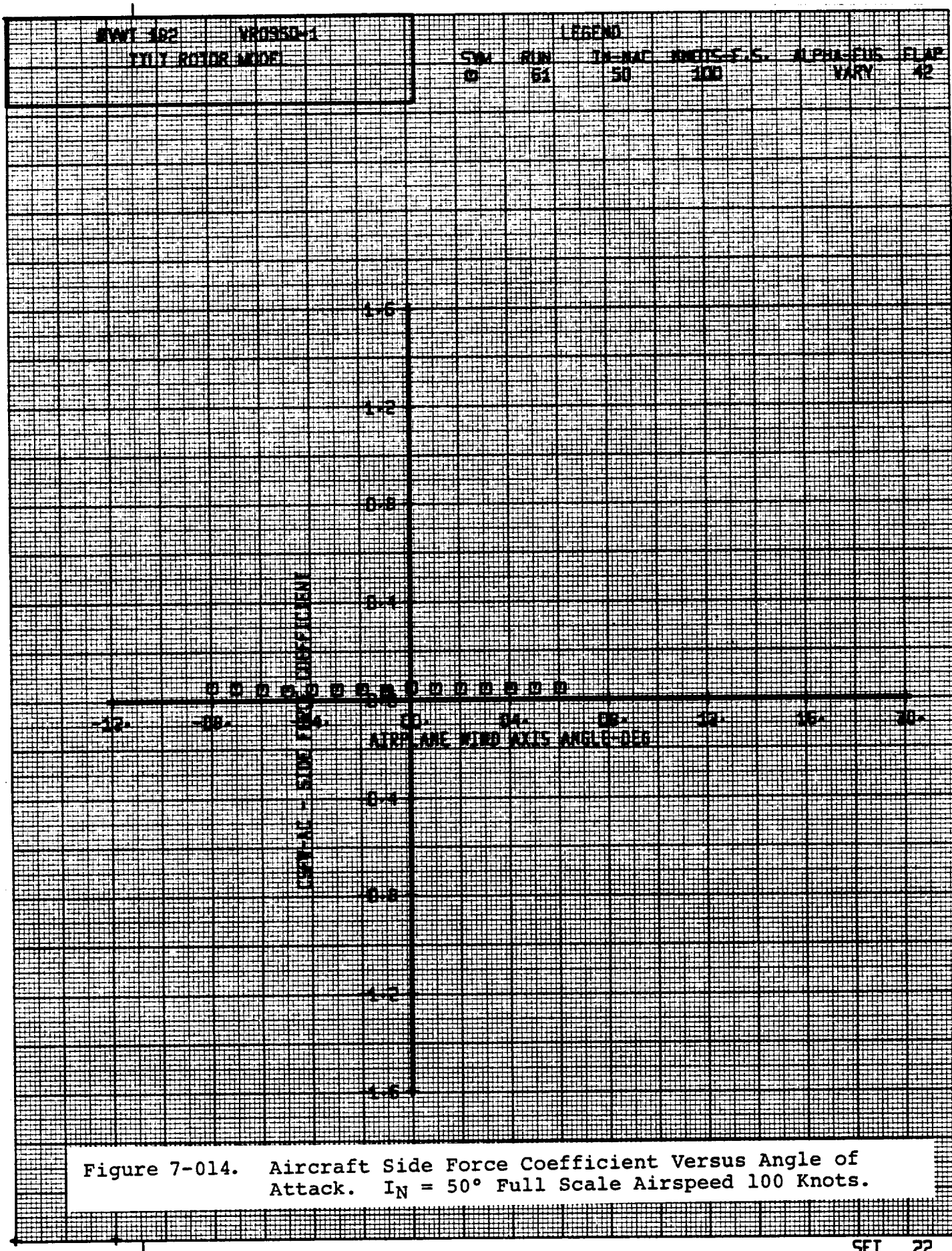


Figure 7-014. Aircraft Side Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

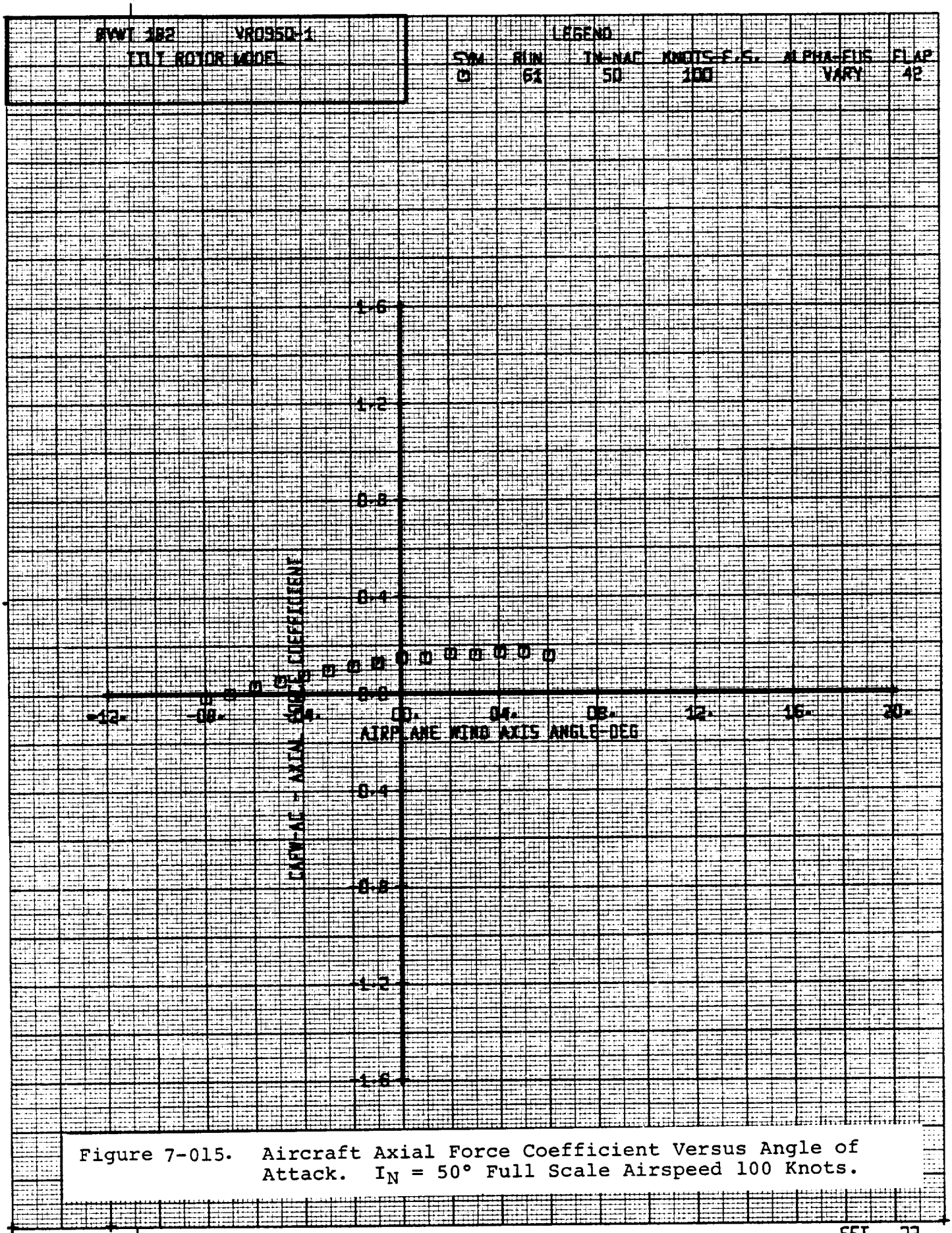


Figure 7-015. Aircraft Axial Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

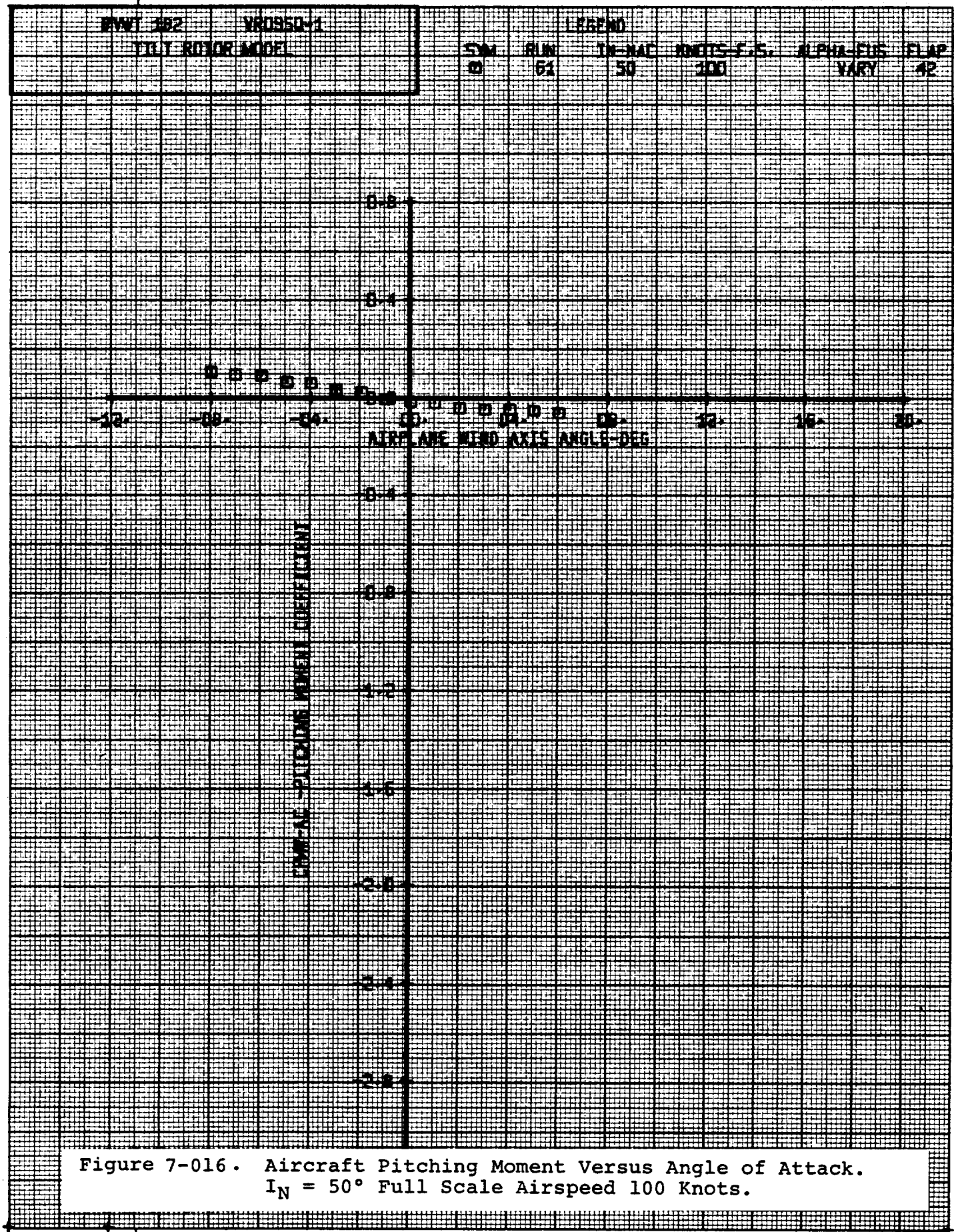


Figure 7-016. Aircraft Pitching Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

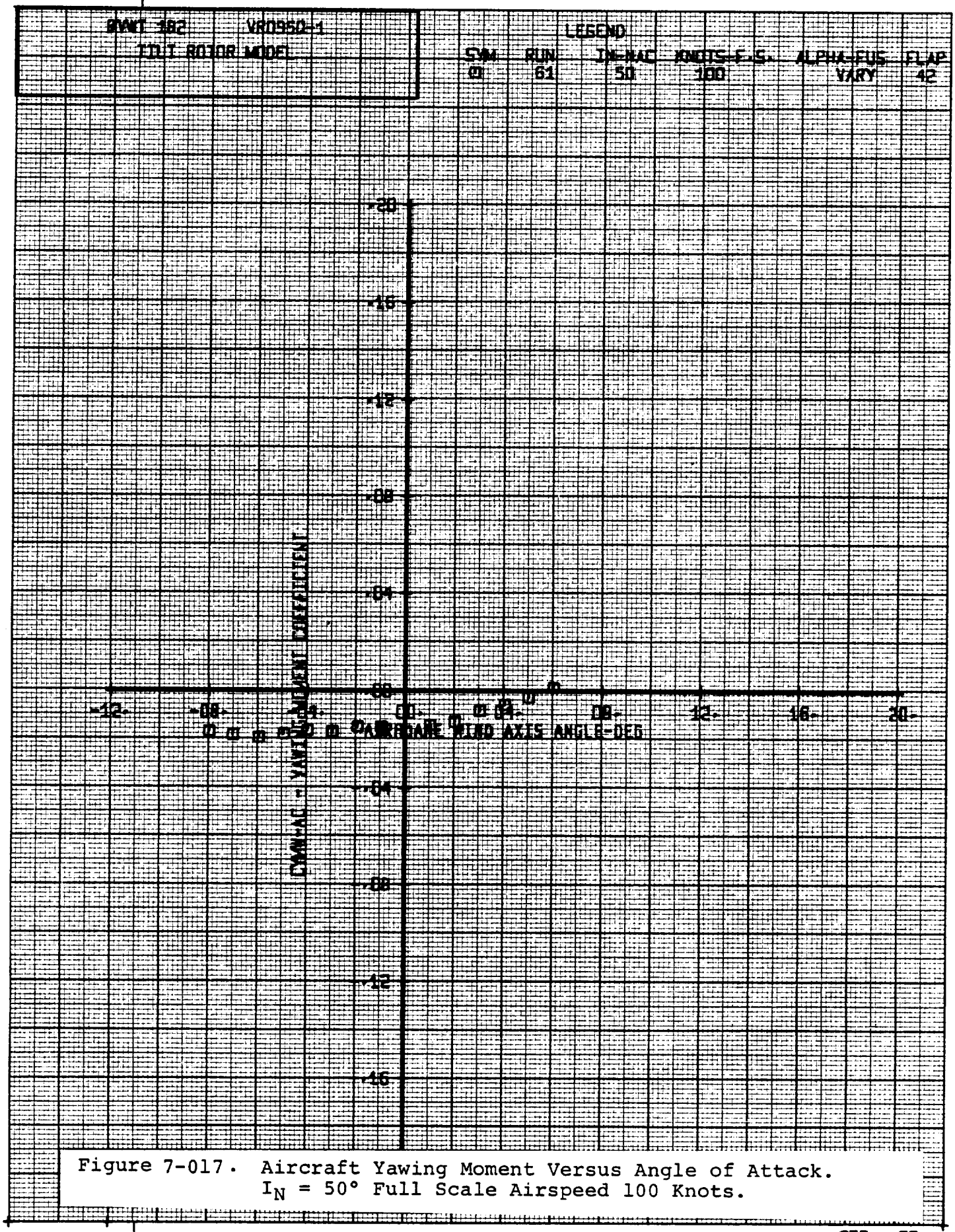


Figure 7-017. Aircraft Yawing Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

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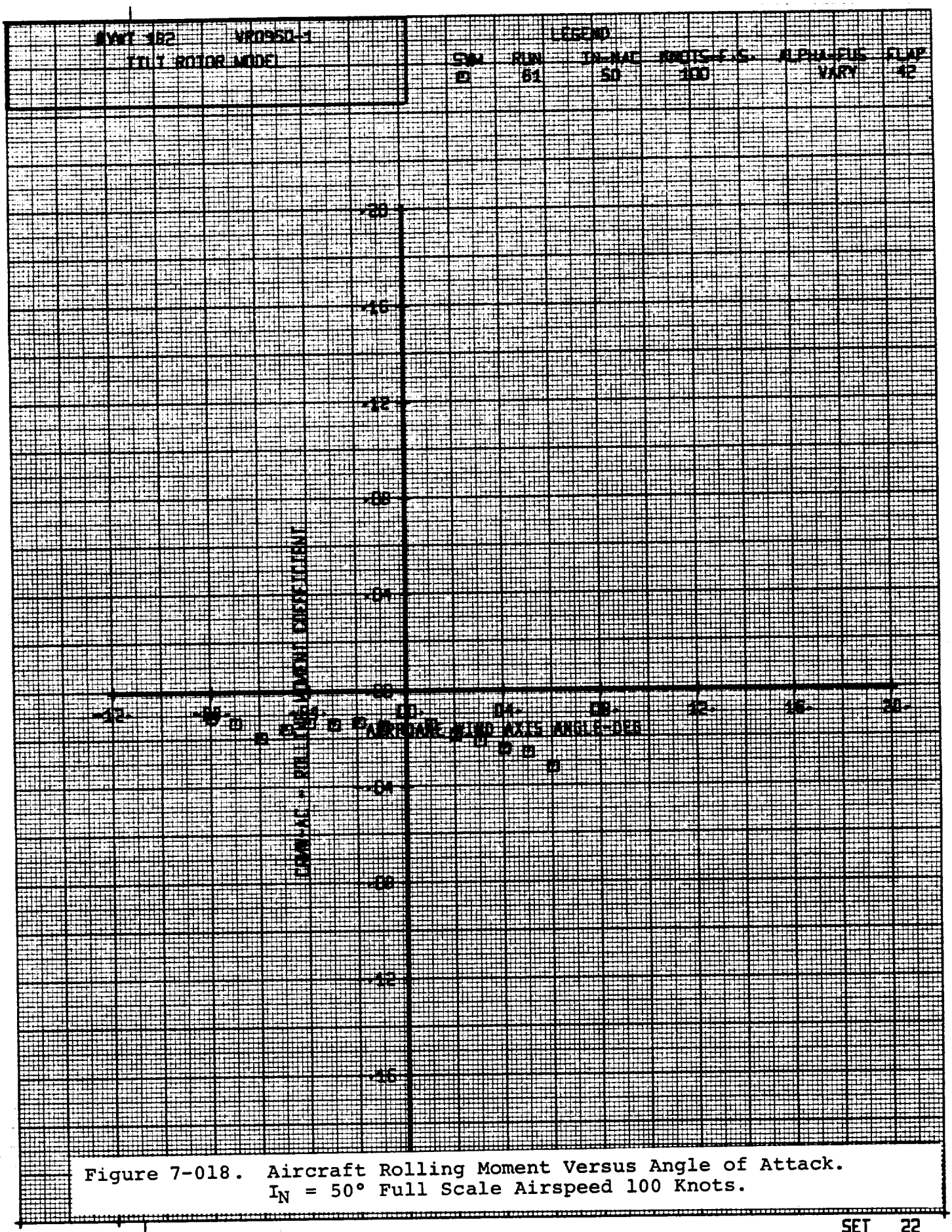


Figure 7-018. Aircraft Rolling Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

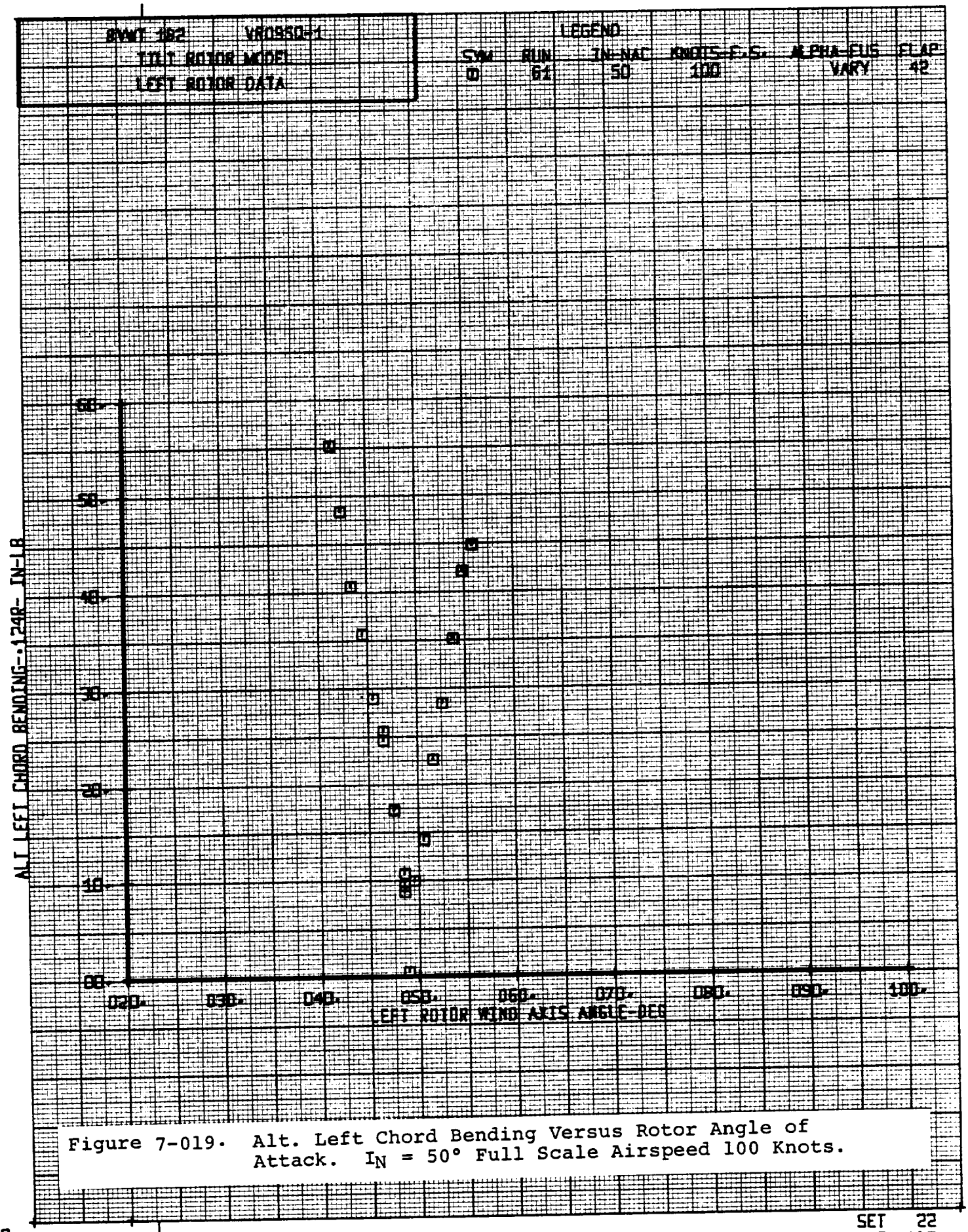


Figure 7-019. Alt. Left Chord Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

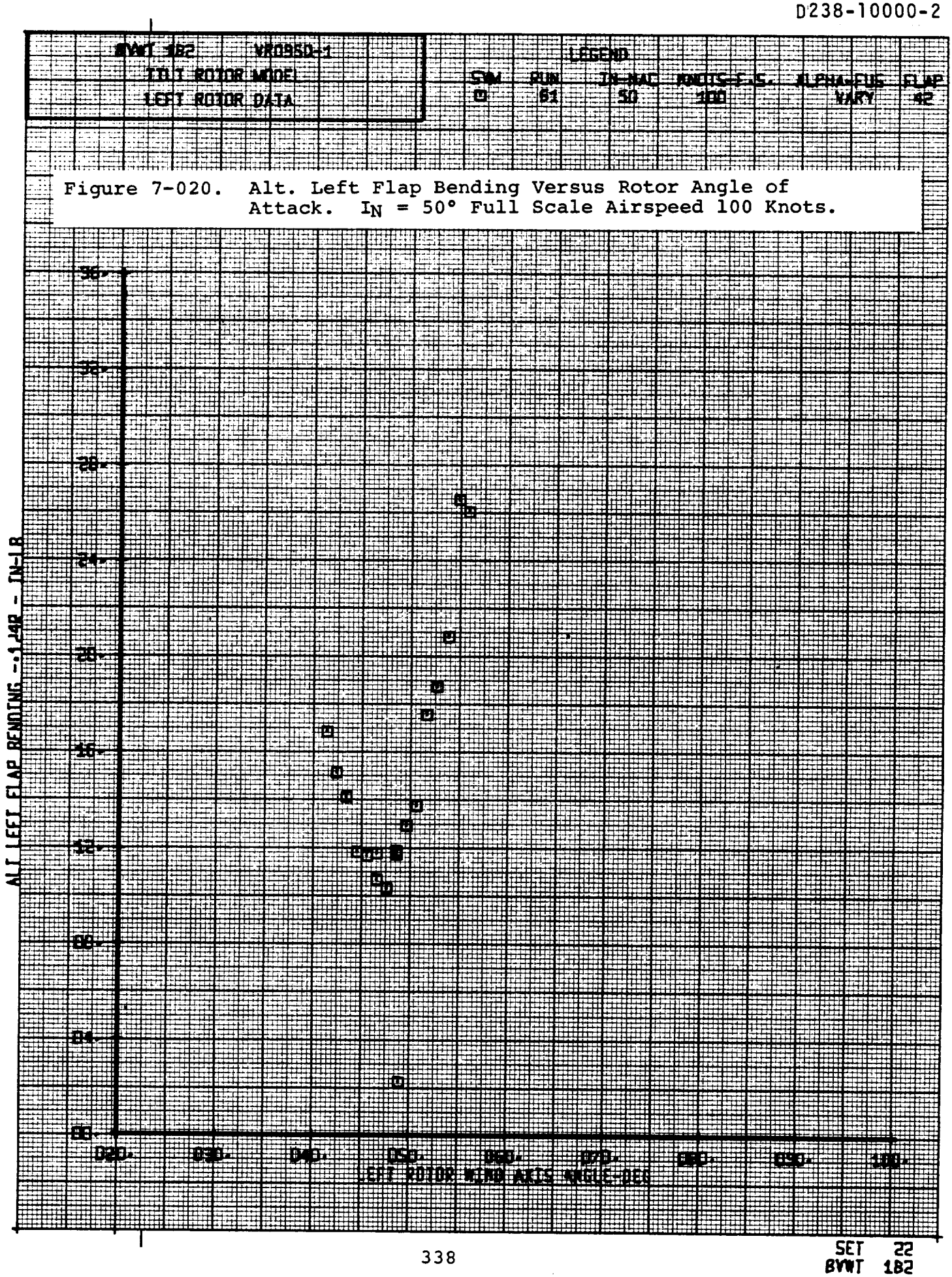


Figure 7-020. Alt. Left Flap Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

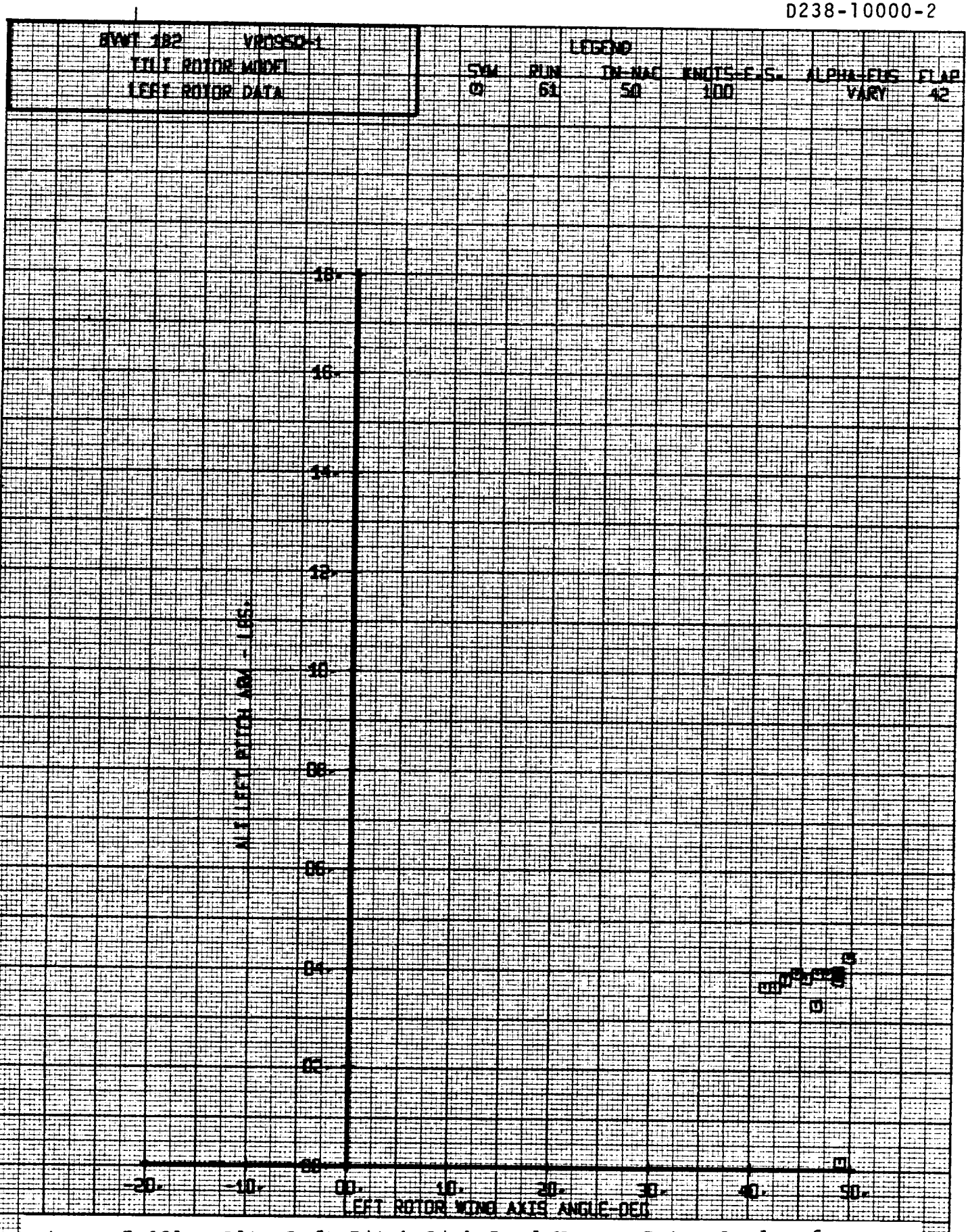


Figure 7-021. Alt. Left Pitch Link Load Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

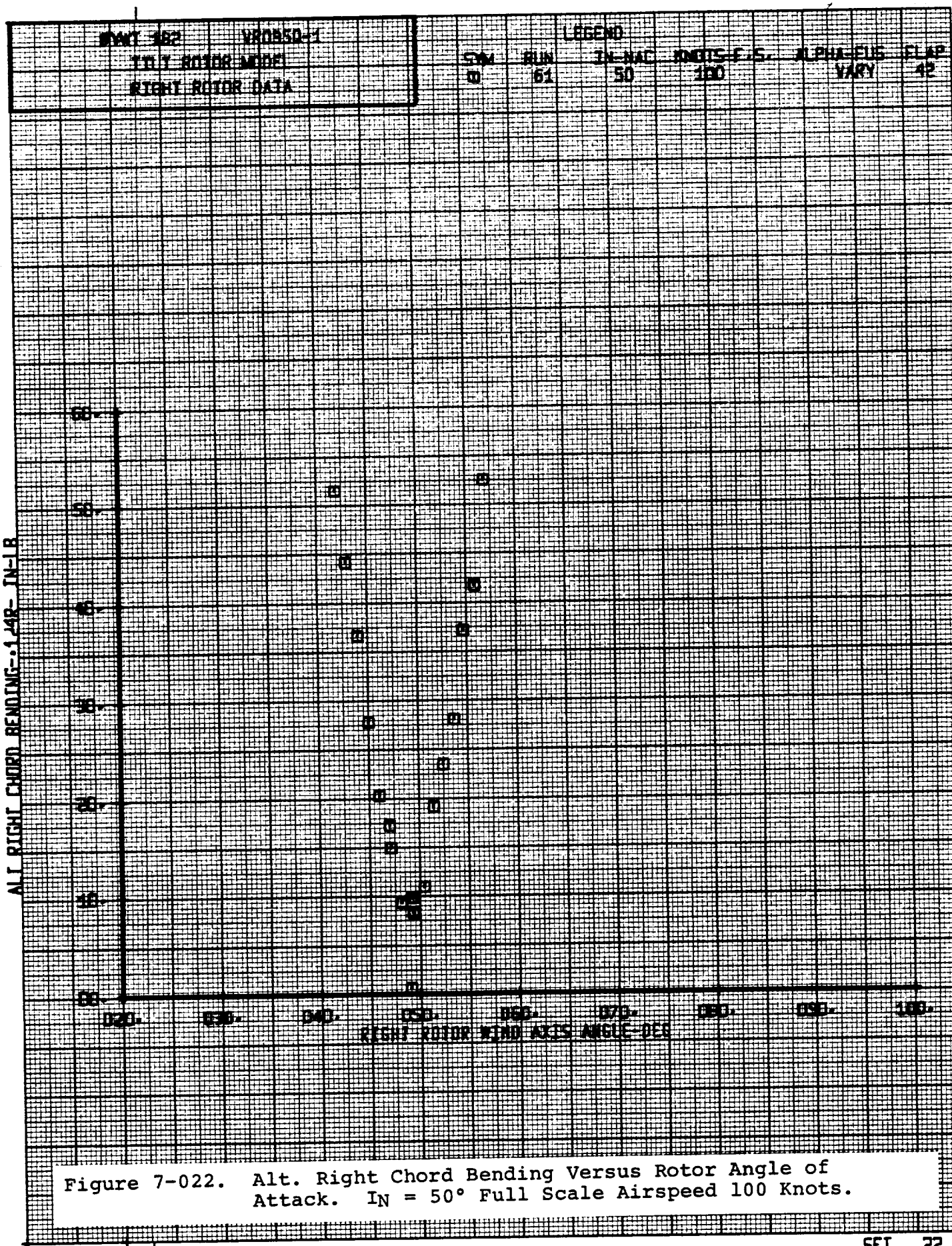


Figure 7-022. Alt. Right Chord Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

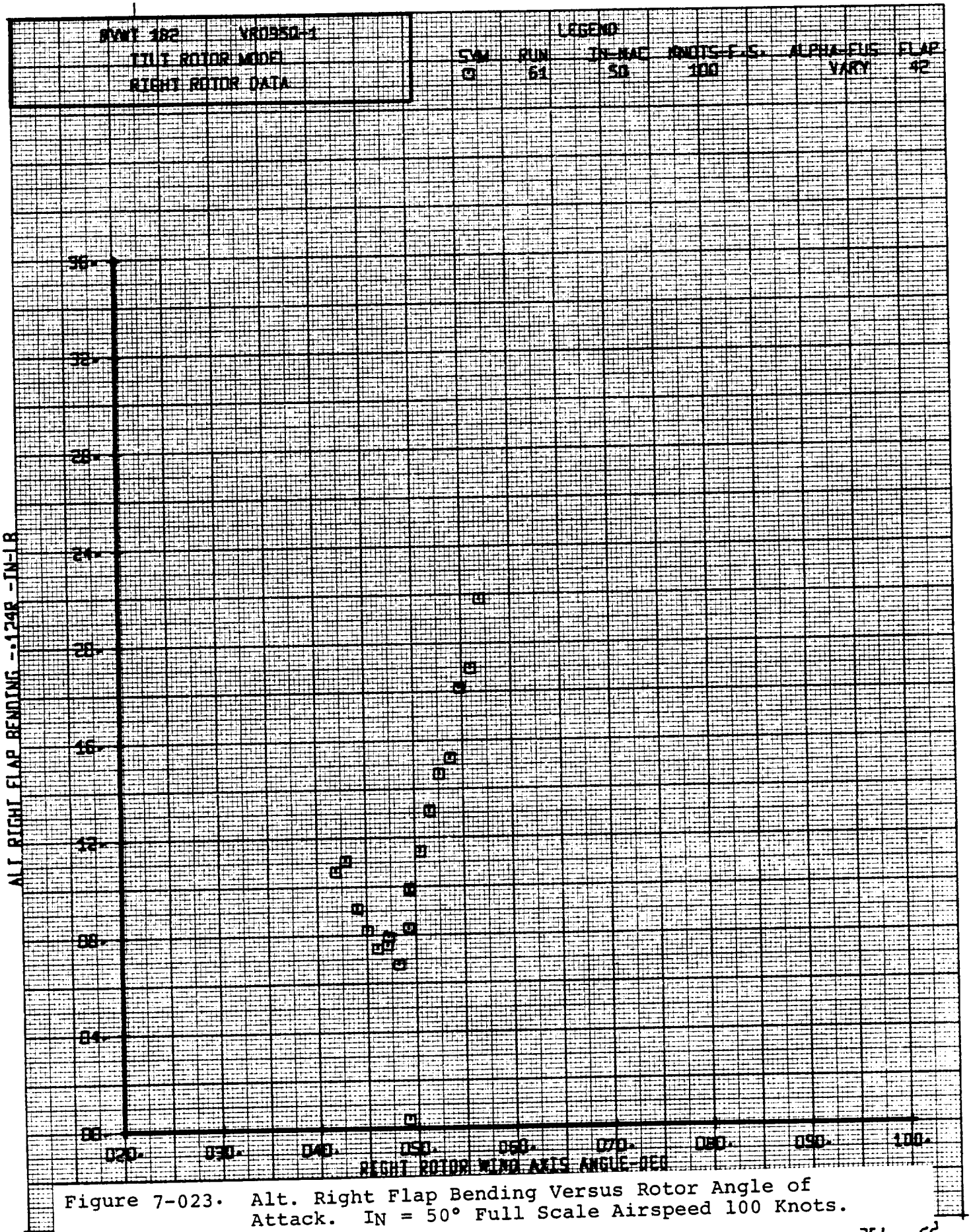


Figure 7-023. Alt. Right Flap Bending Versus Rotor Angle of Attack. IN = 50° Full Scale Airspeed 100 Knots.

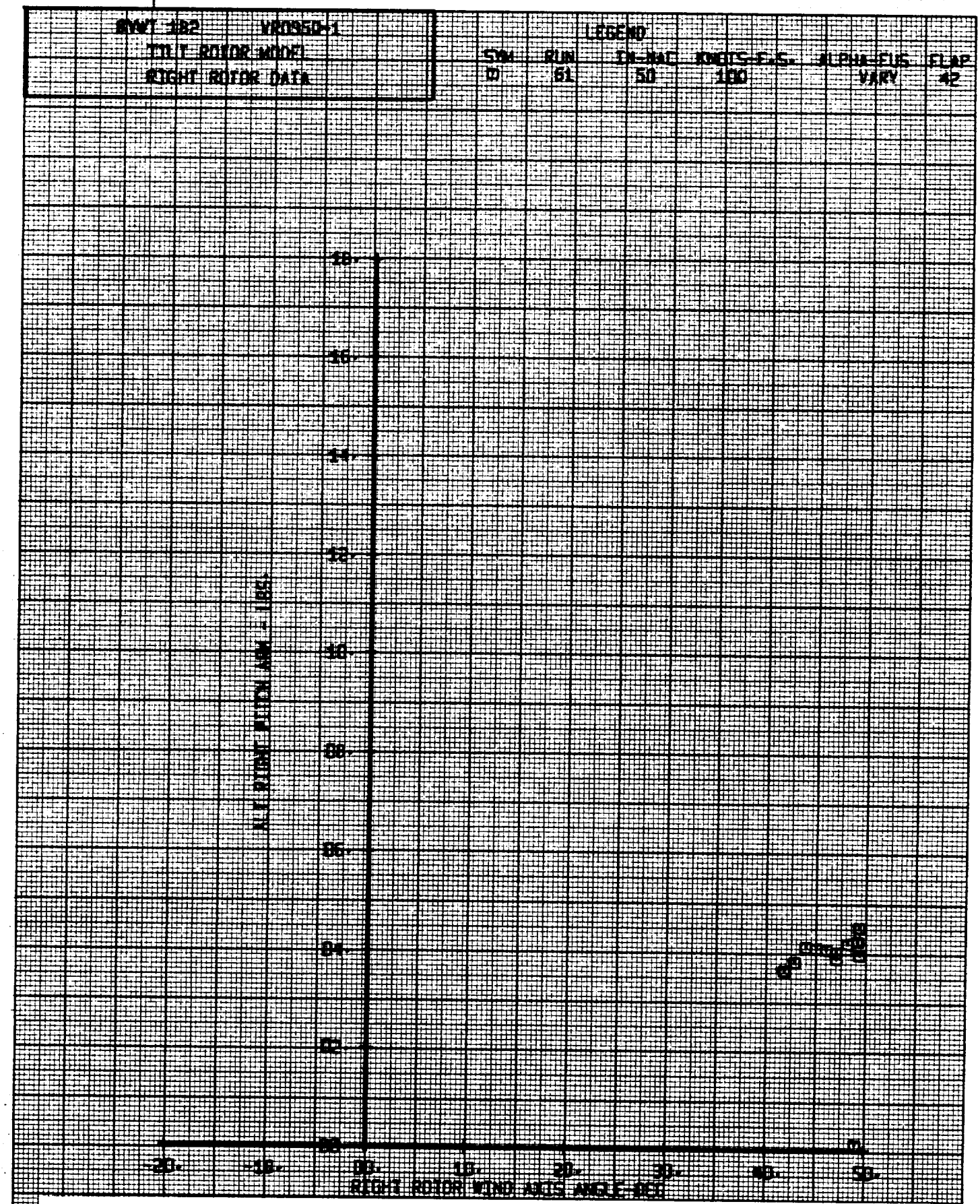


Figure 7-024. Alt. Right Pitch Link Load Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 100 Knots.

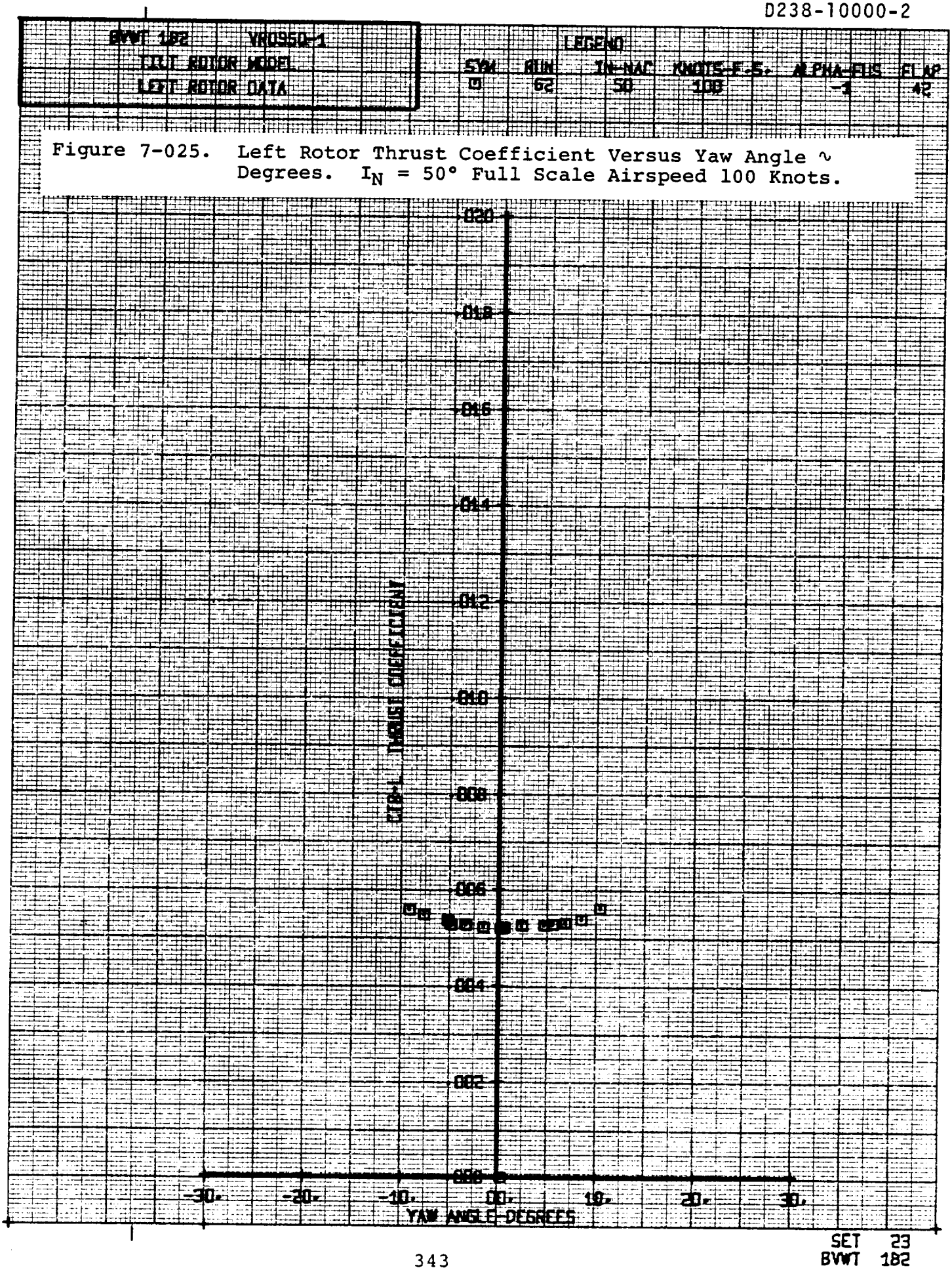


Figure 7-025. Left Rotor Thrust Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

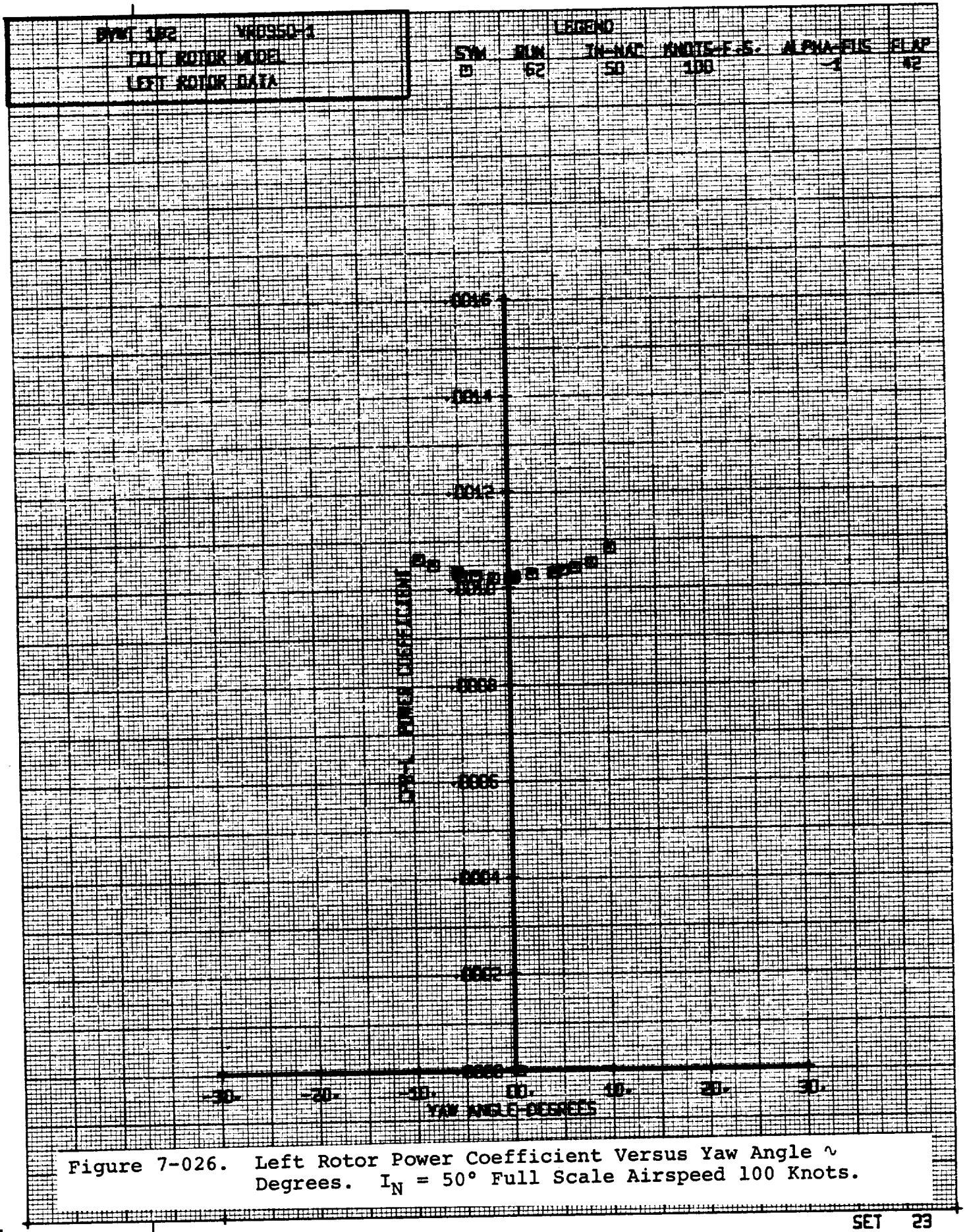


Figure 7-026. Left Rotor Power Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

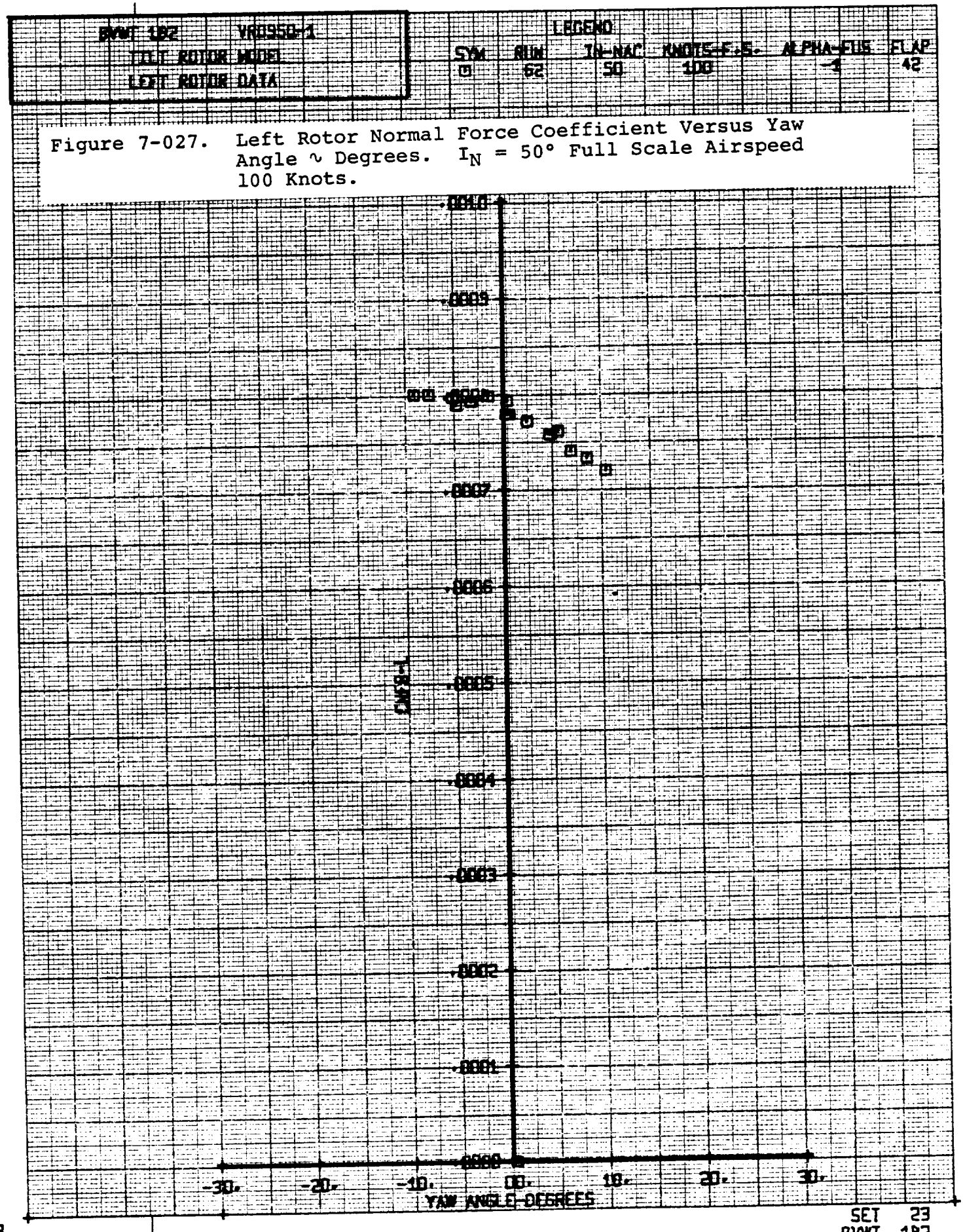


Figure 7-027. Left Rotor Normal Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

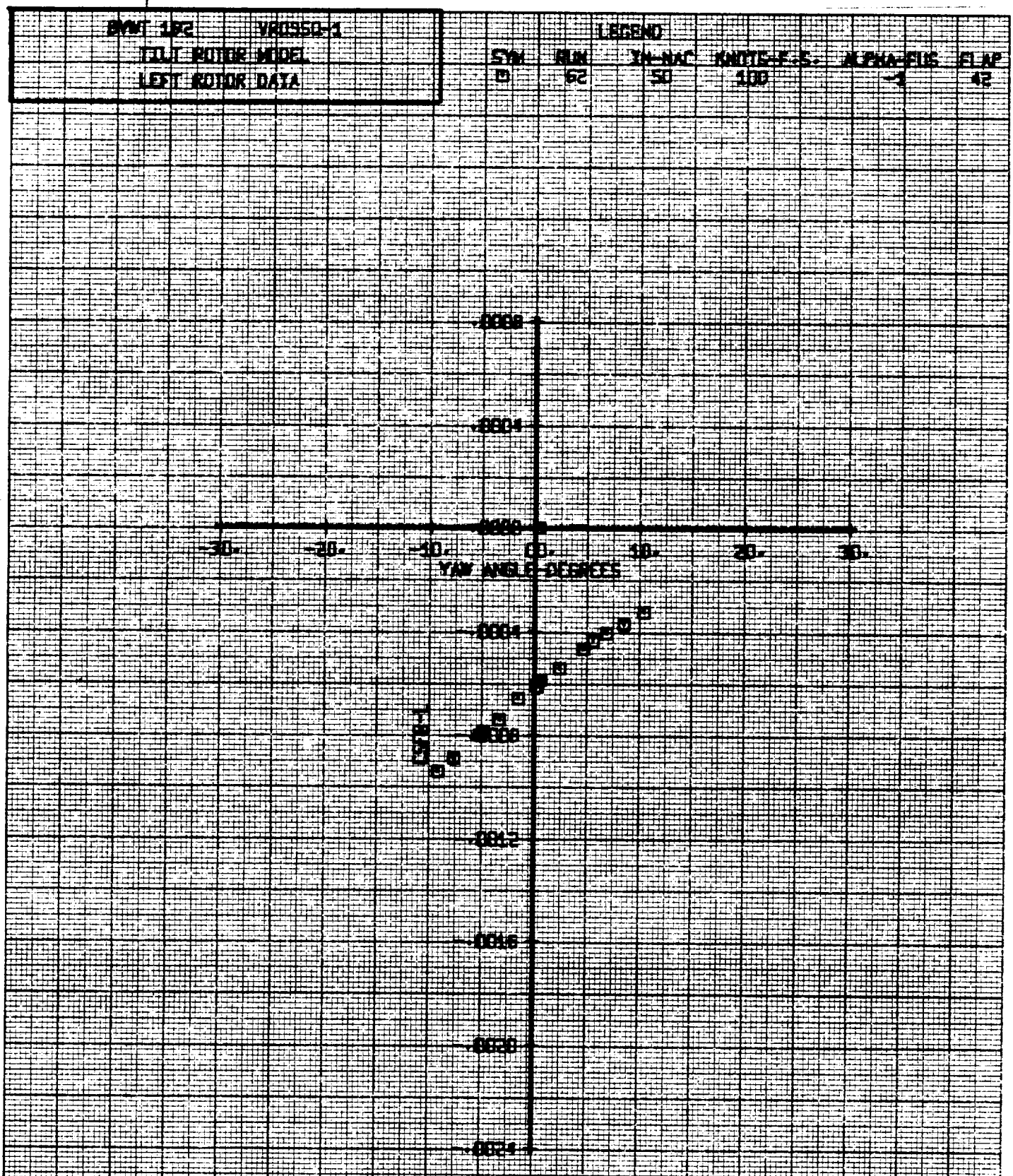


Figure 7-028. Left Rotor Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

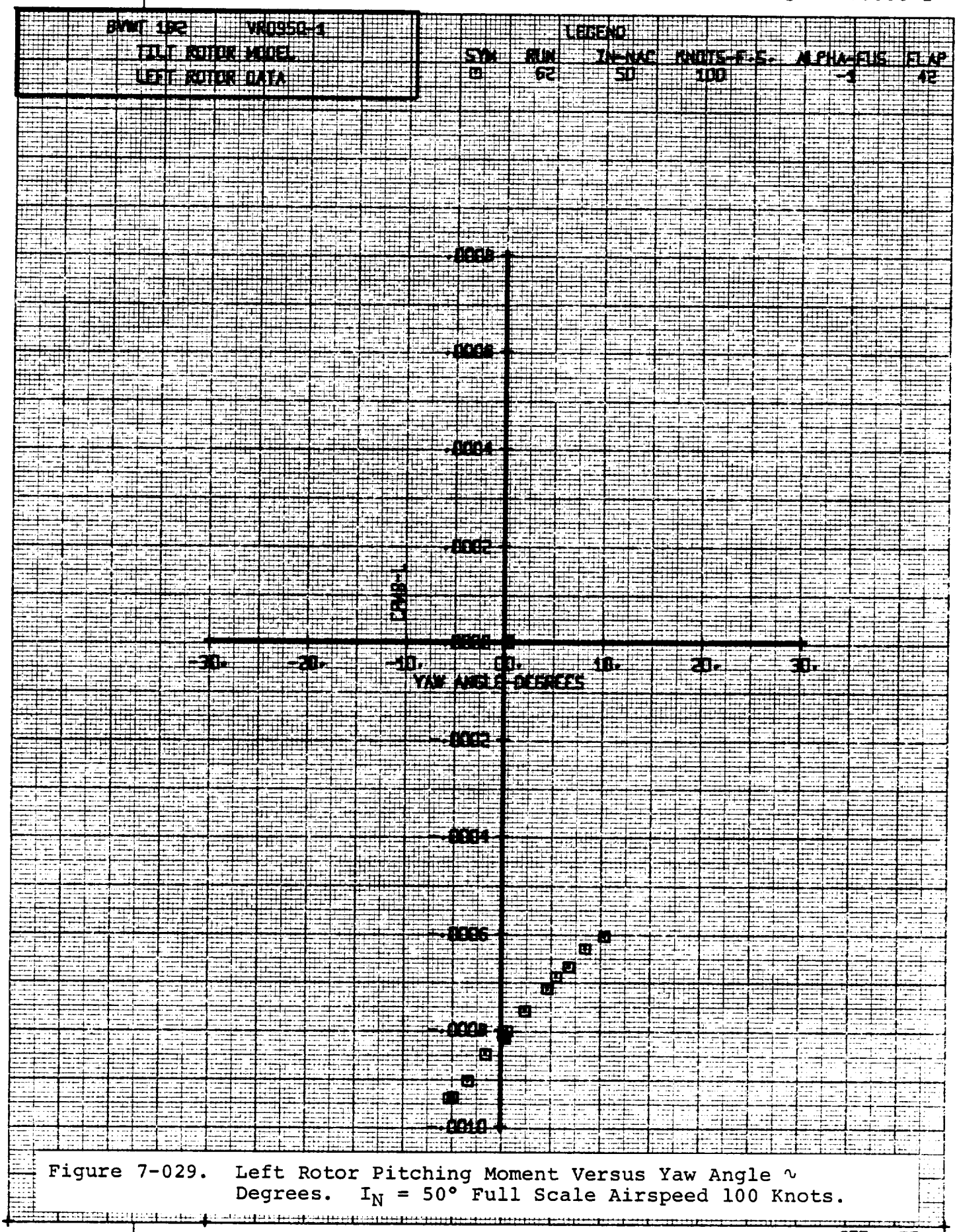


Figure 7-029. Left Rotor Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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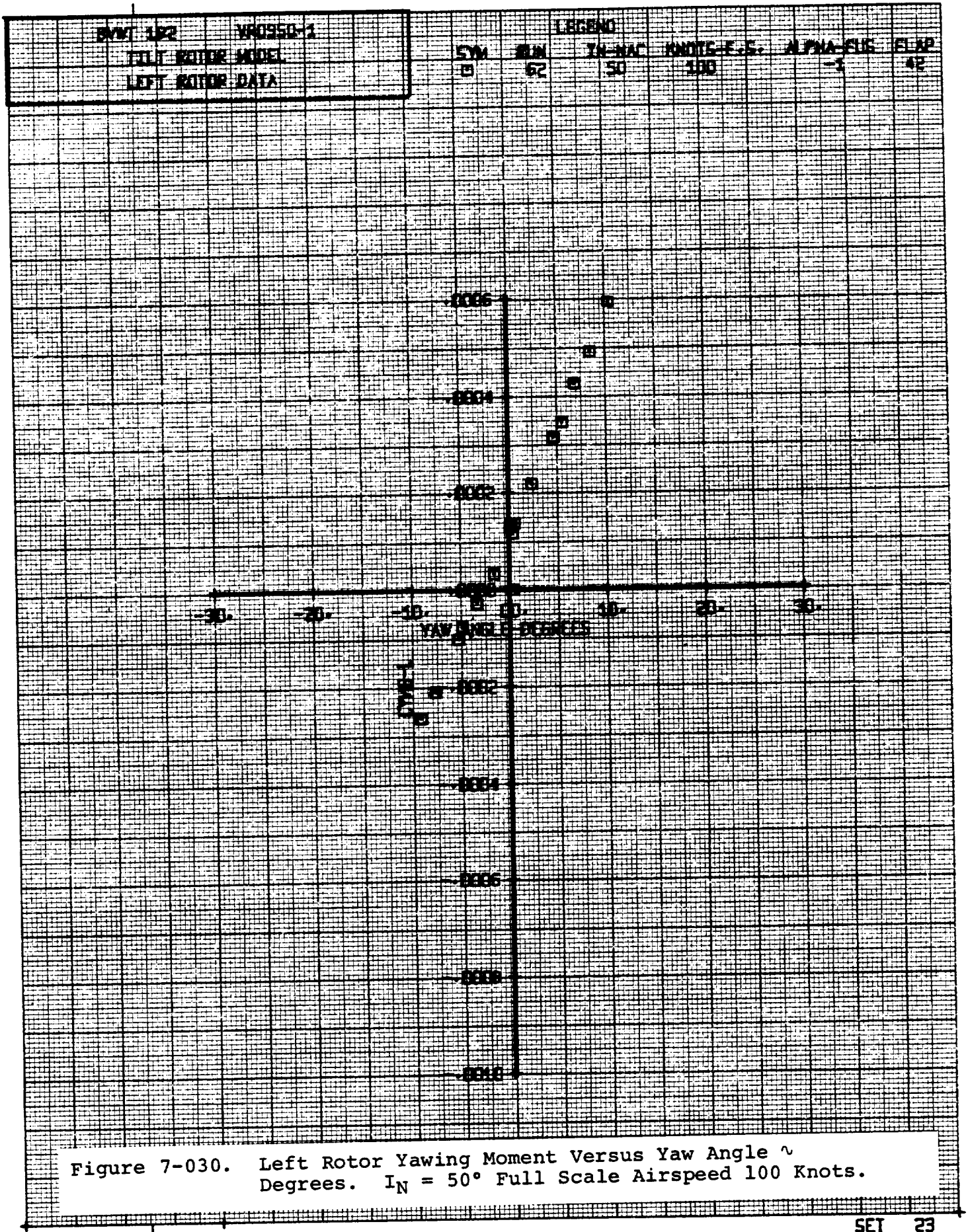


Figure 7-030. Left Rotor Yawing Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

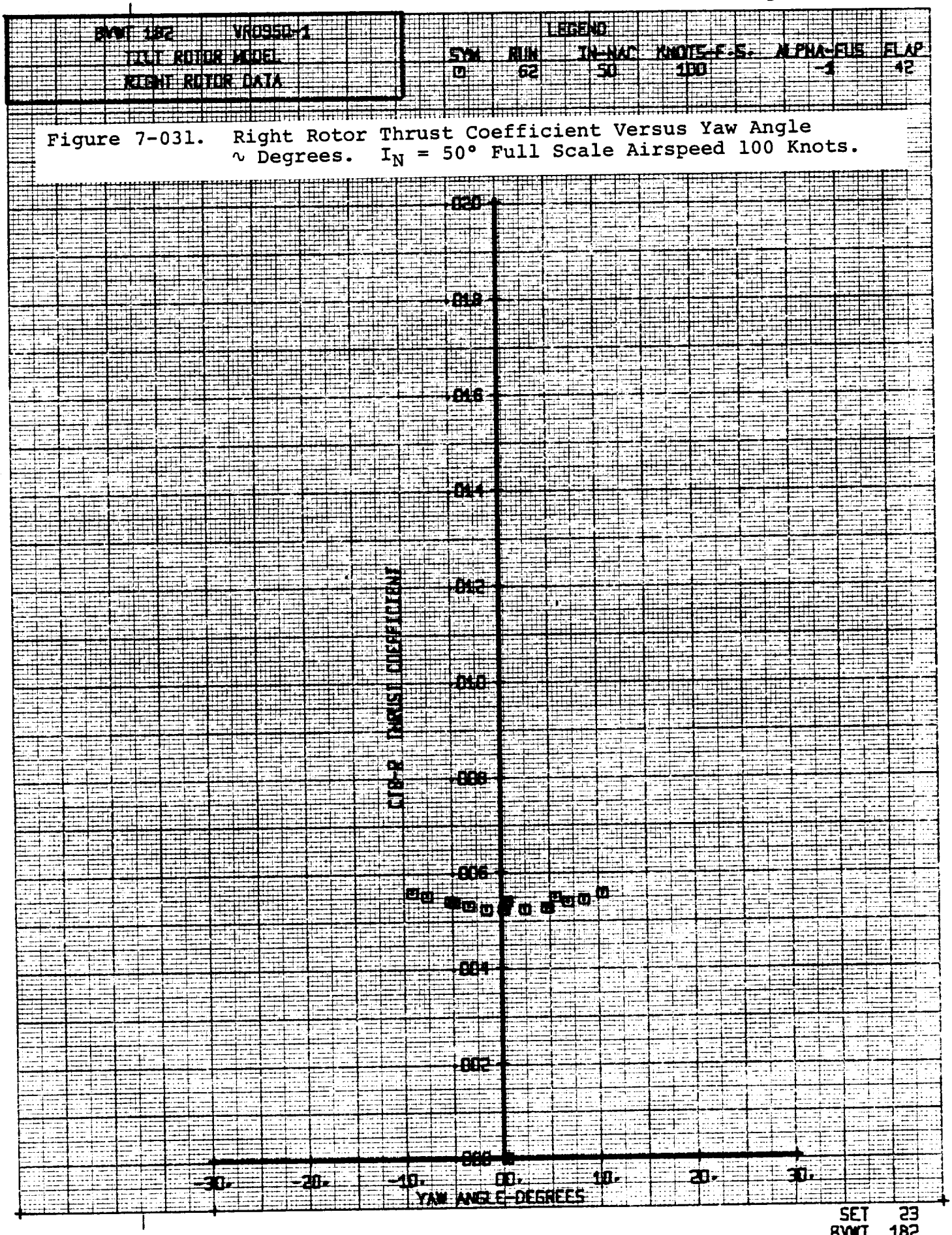


Figure 7-031. Right Rotor Thrust Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

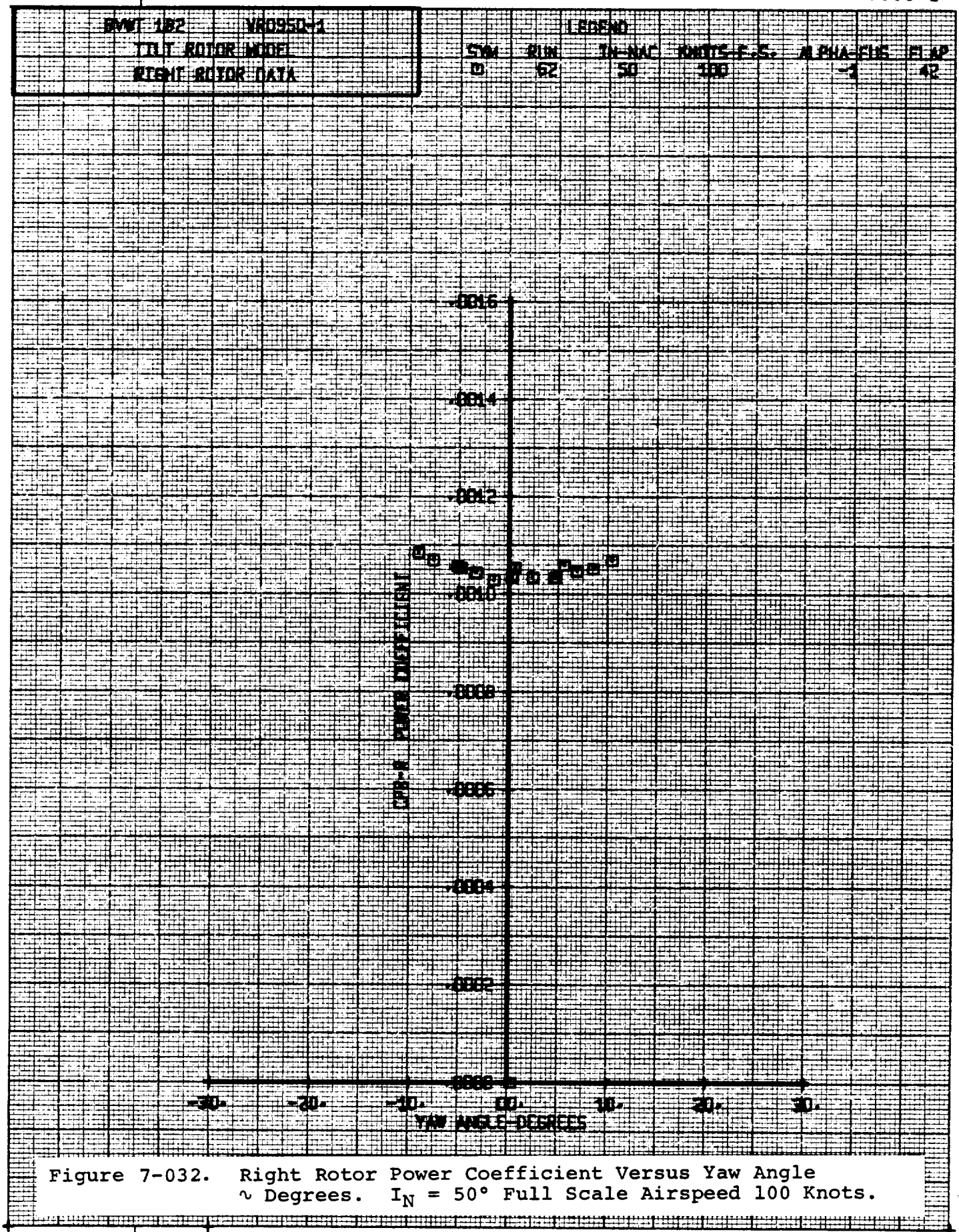


Figure 7-032. Right Rotor Power Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

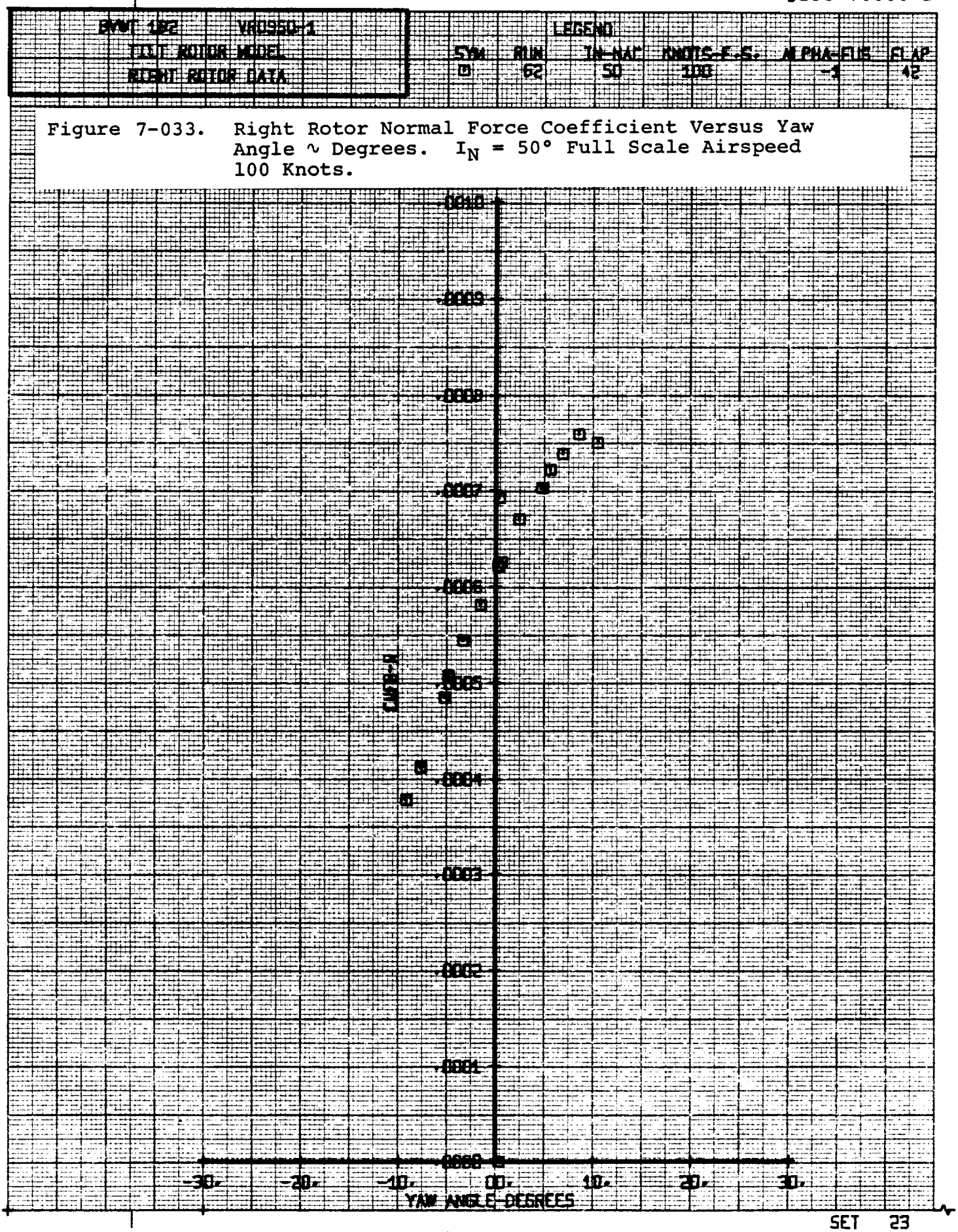


Figure 7-033. Right Rotor Normal Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

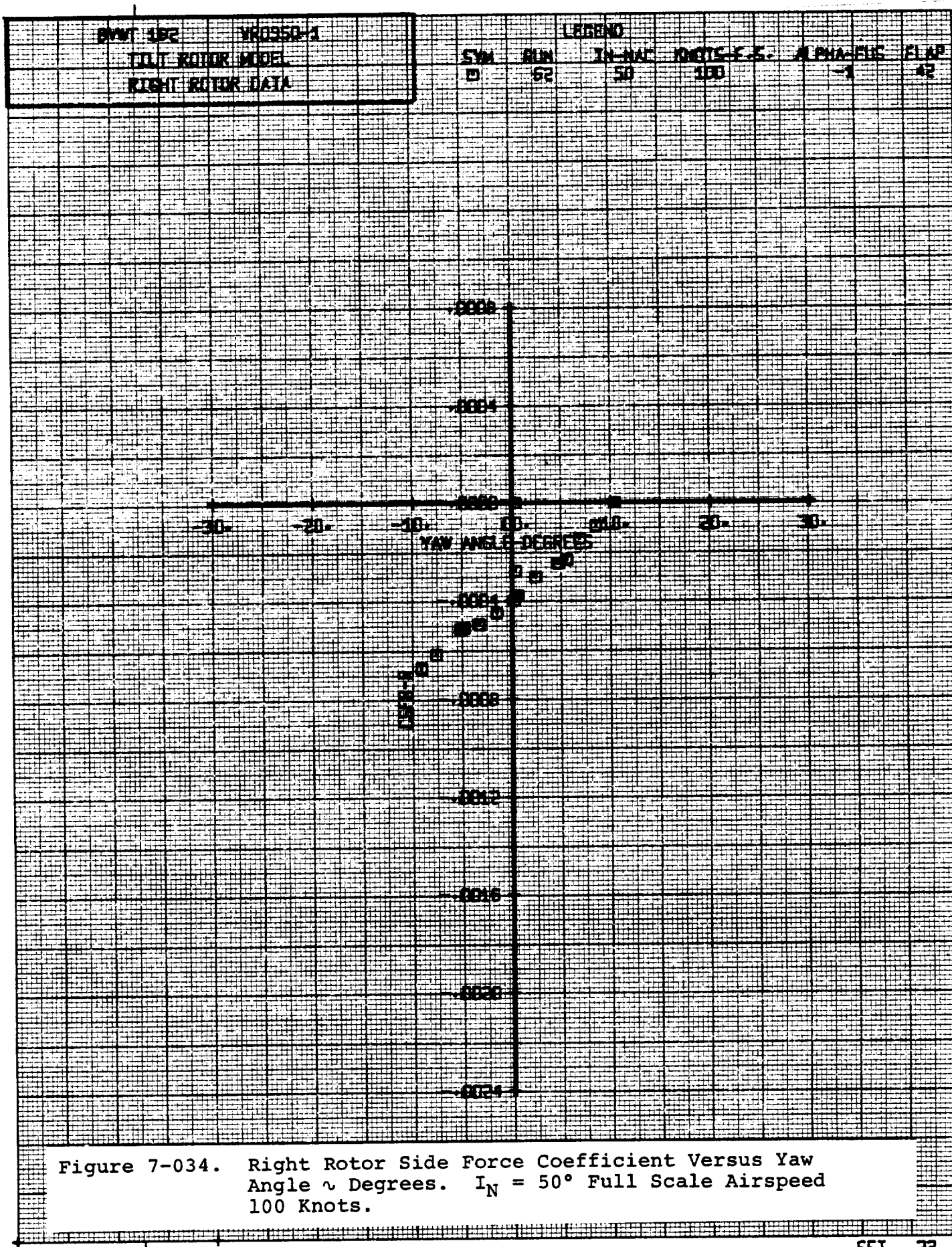


Figure 7-034. Right Rotor Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

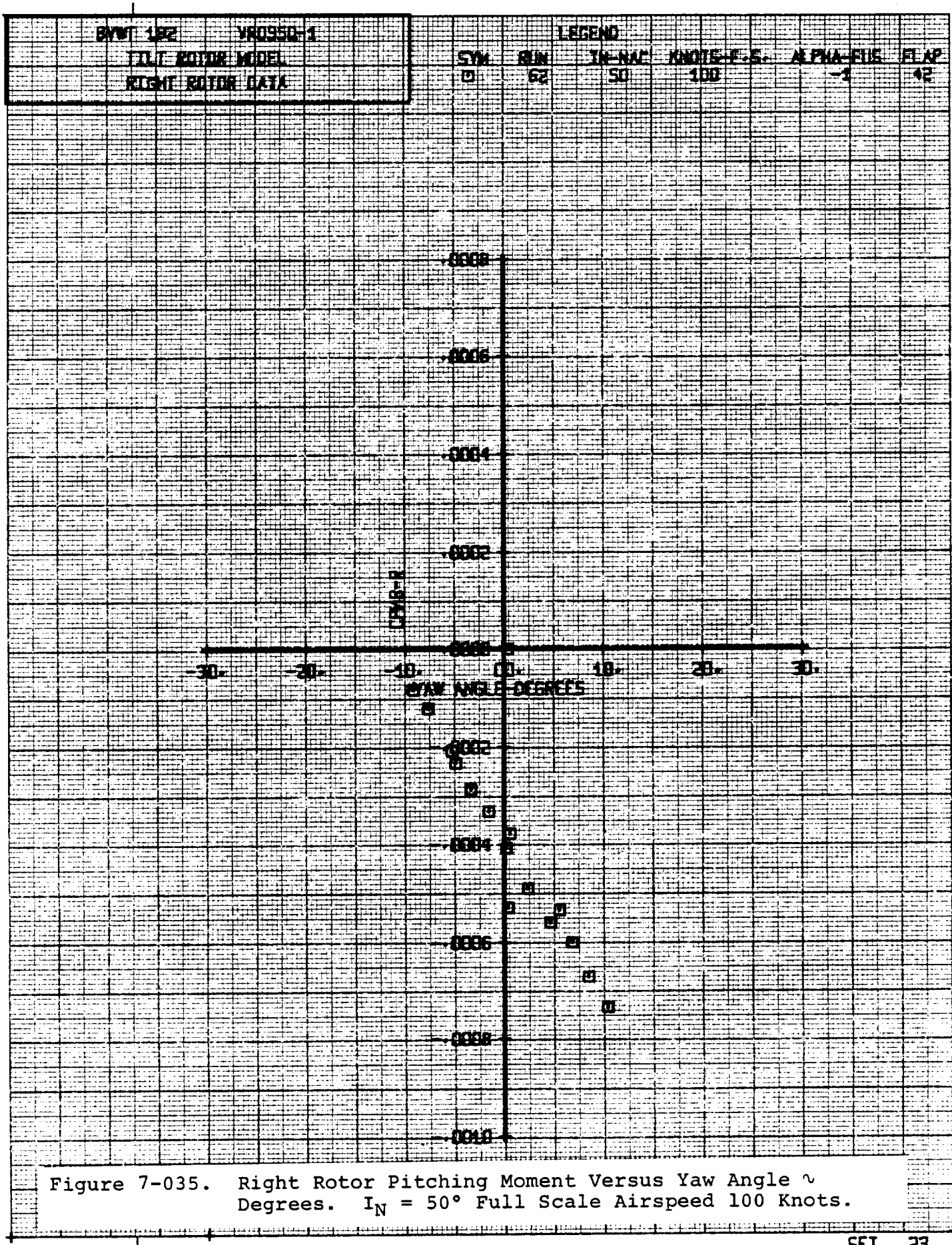


Figure 7-035. Right Rotor Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

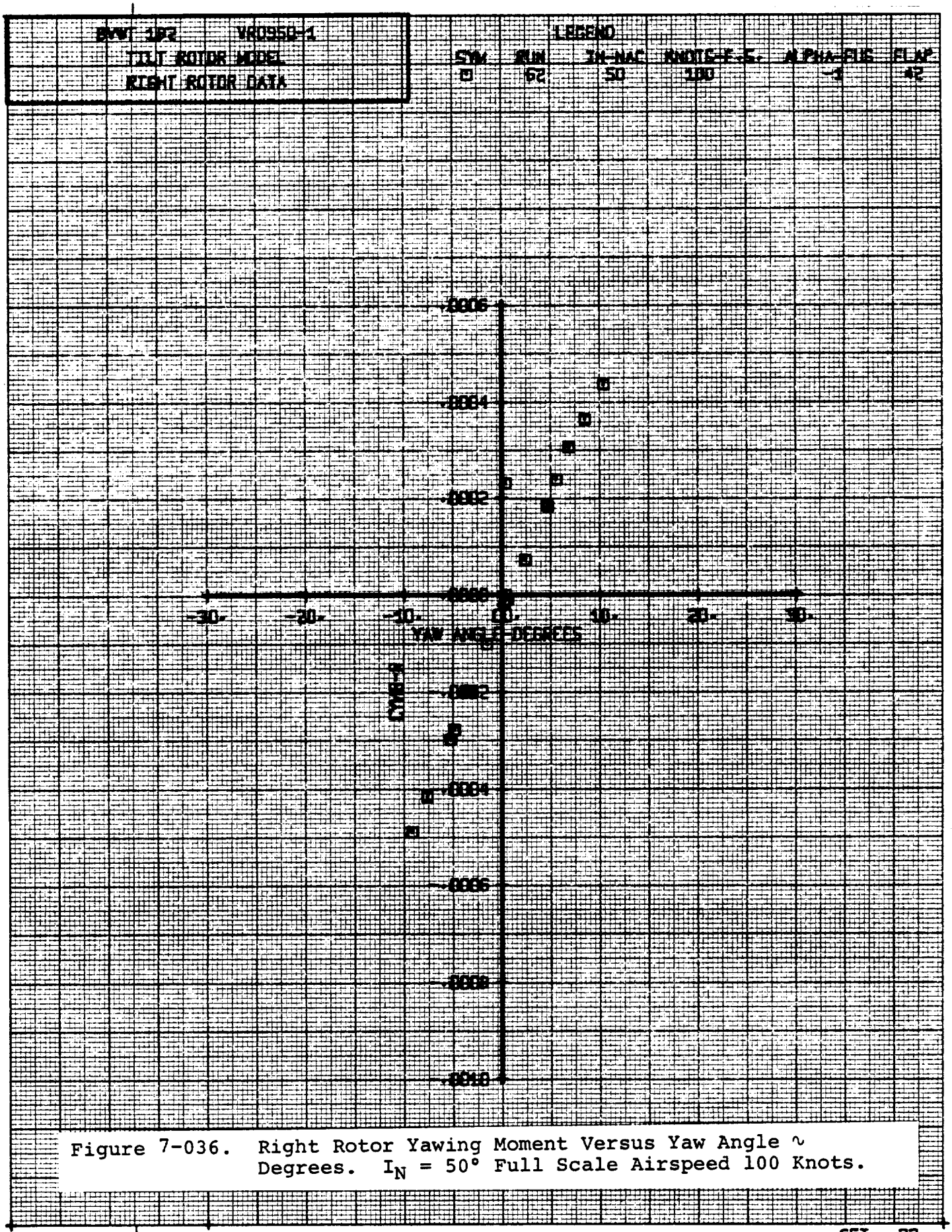


Figure 7-036. Right Rotor Yawing Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

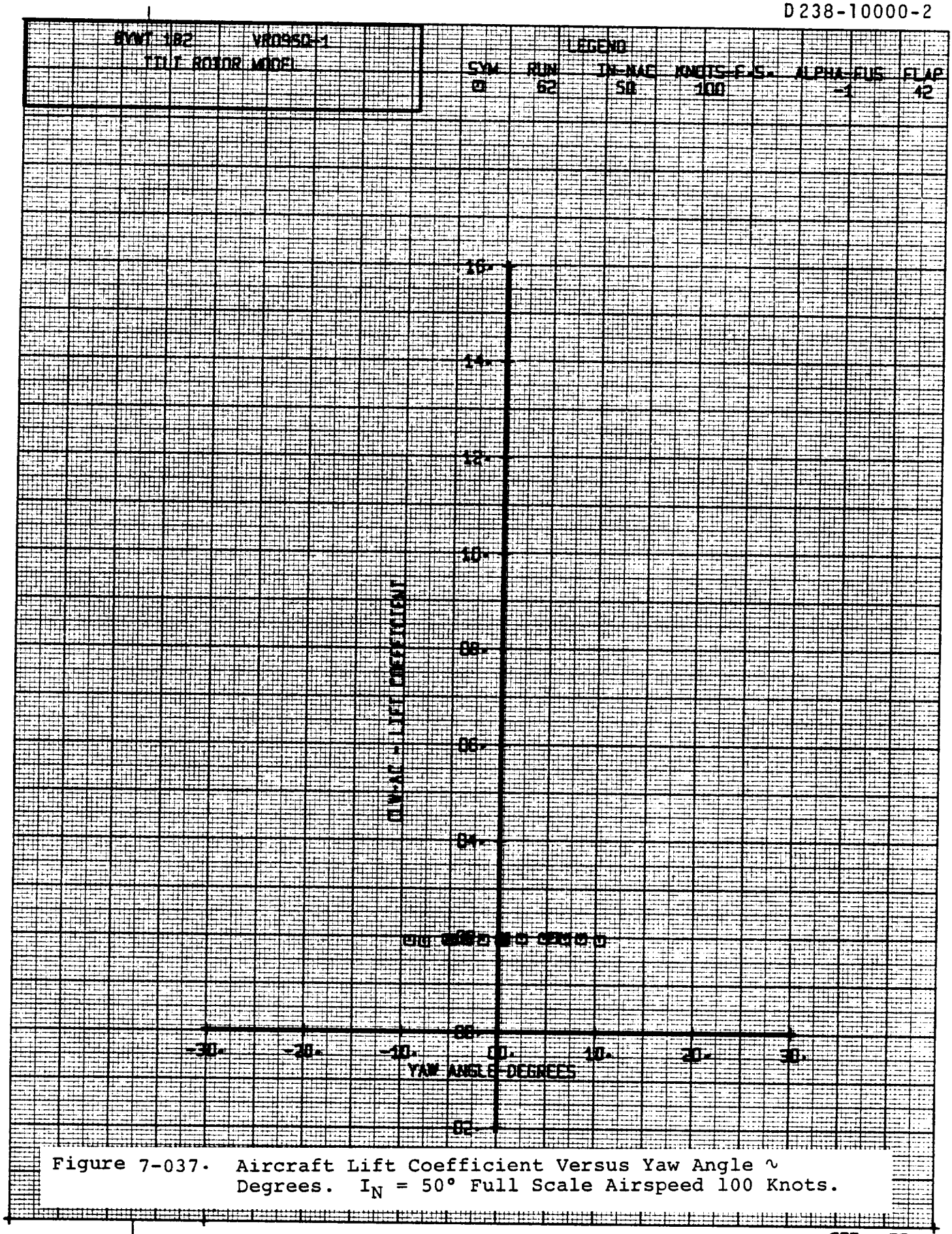


Figure 7-037. Aircraft Lift Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

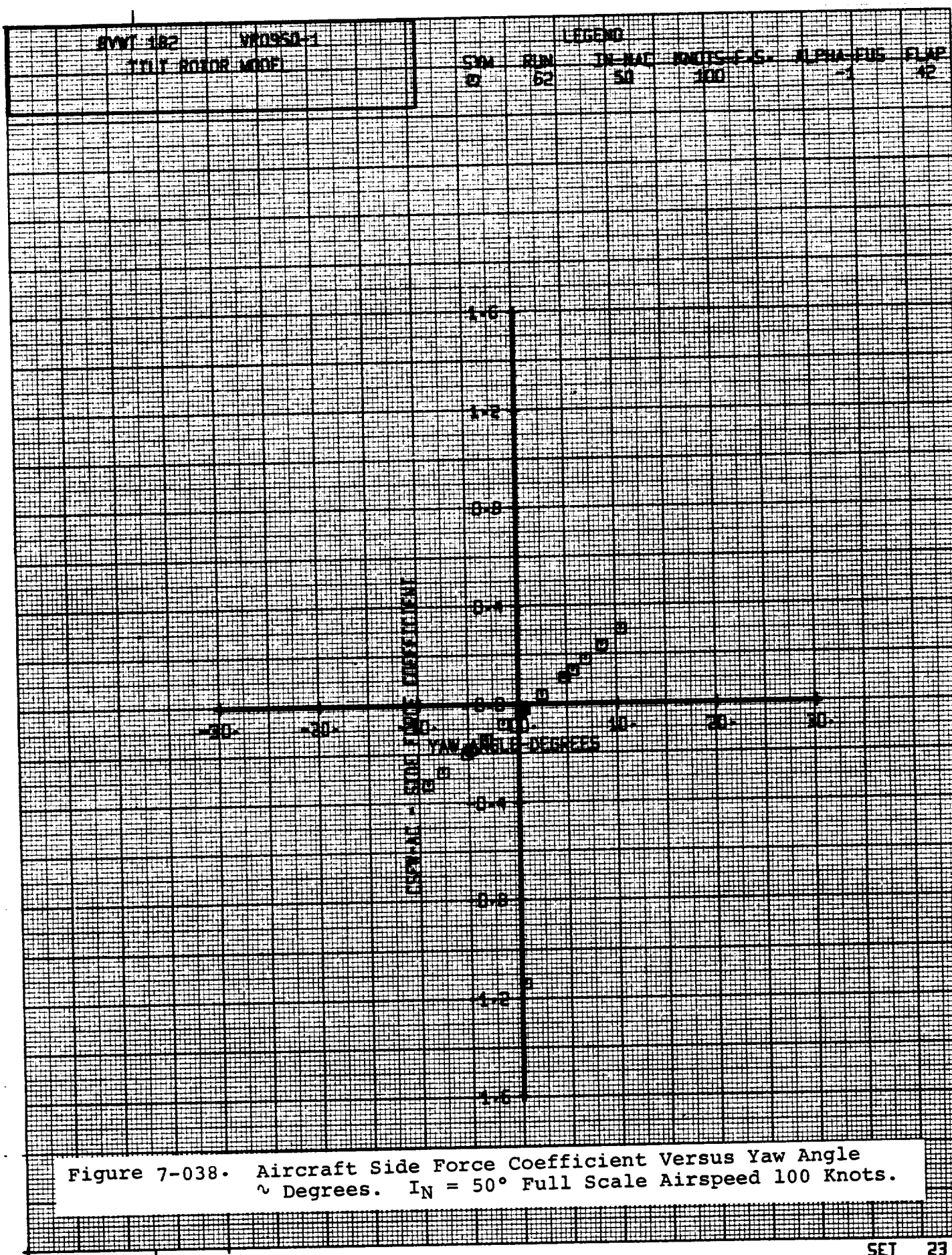


Figure 7-038. Aircraft Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

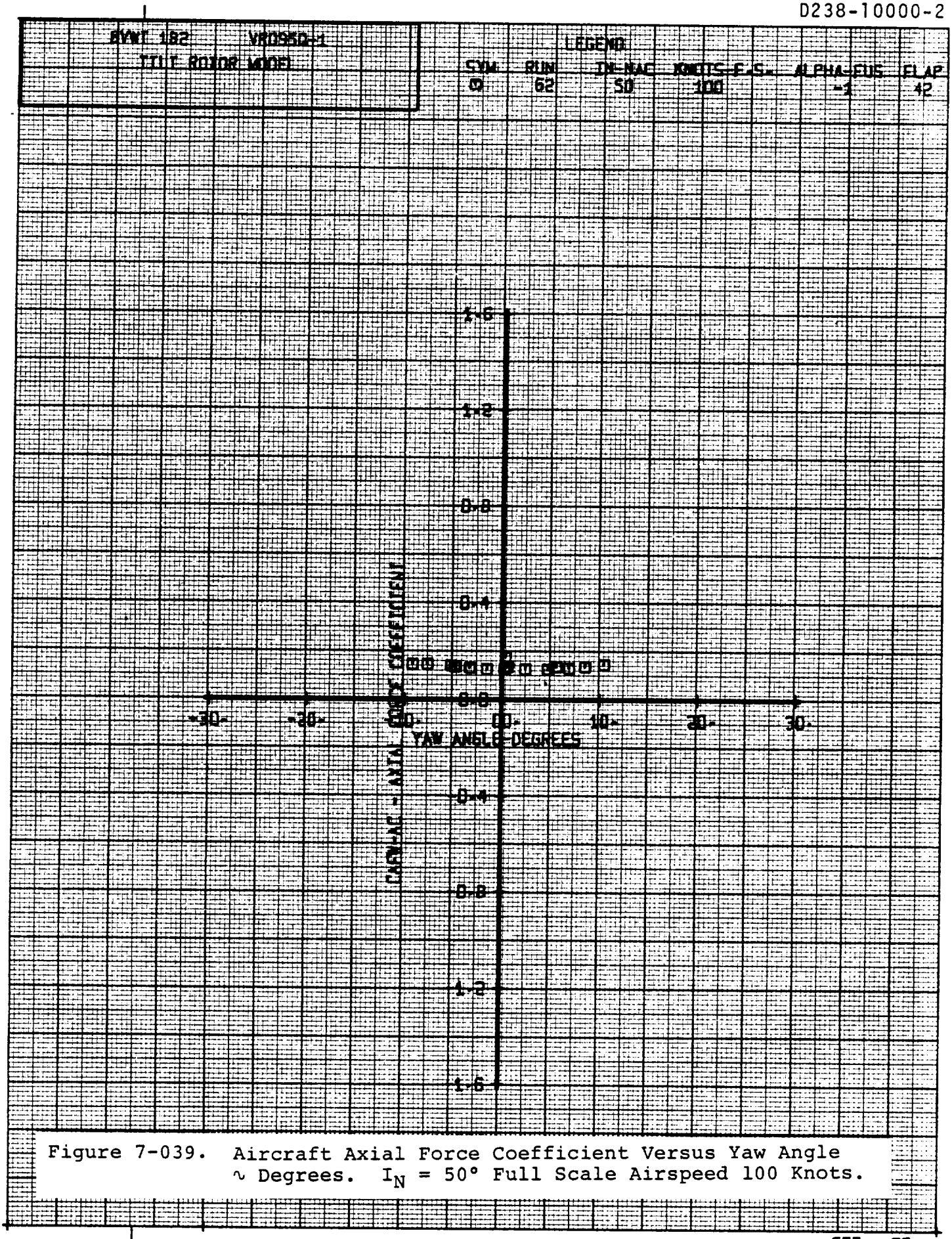


Figure 7-039. Aircraft Axial Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

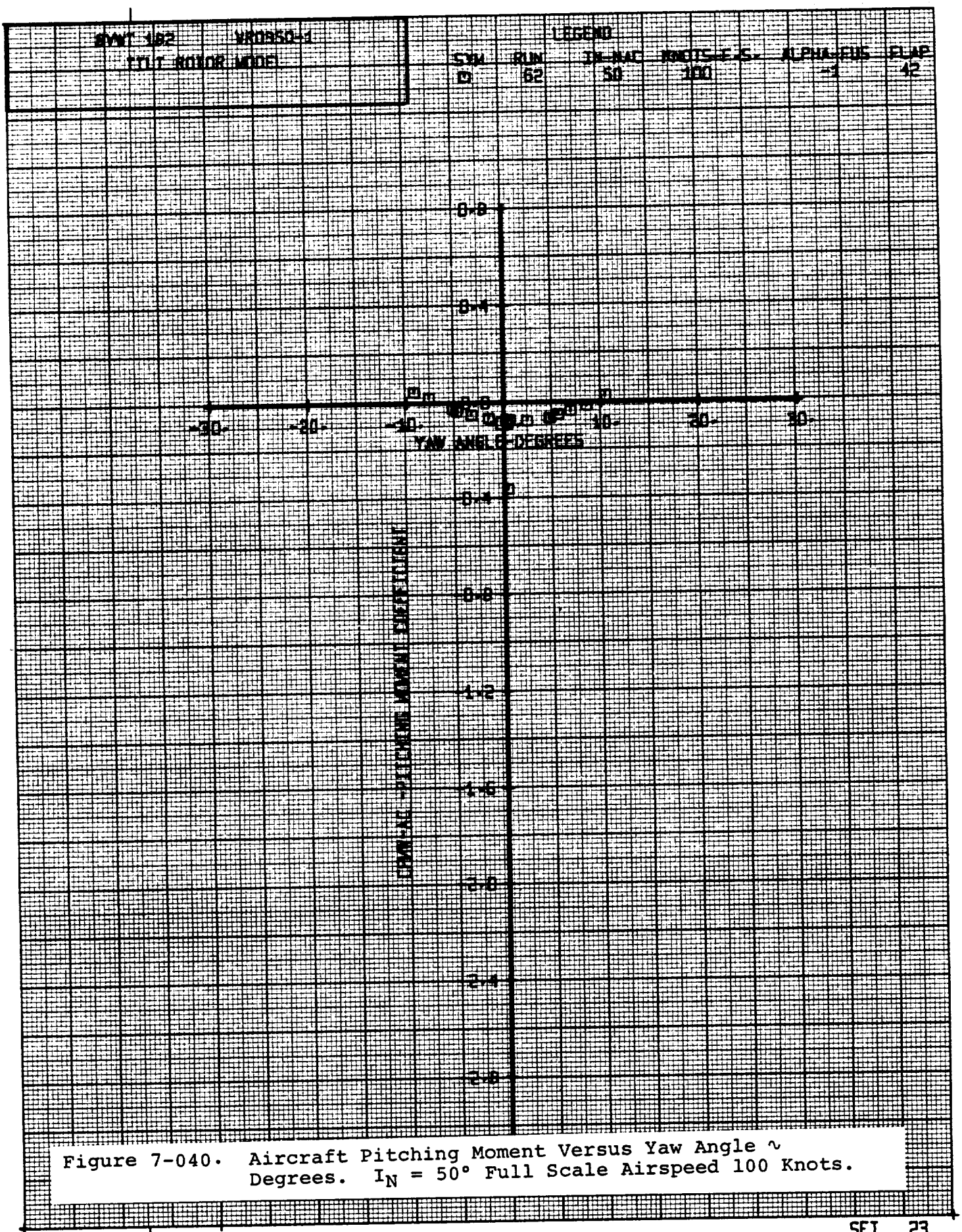


Figure 7-040. Aircraft Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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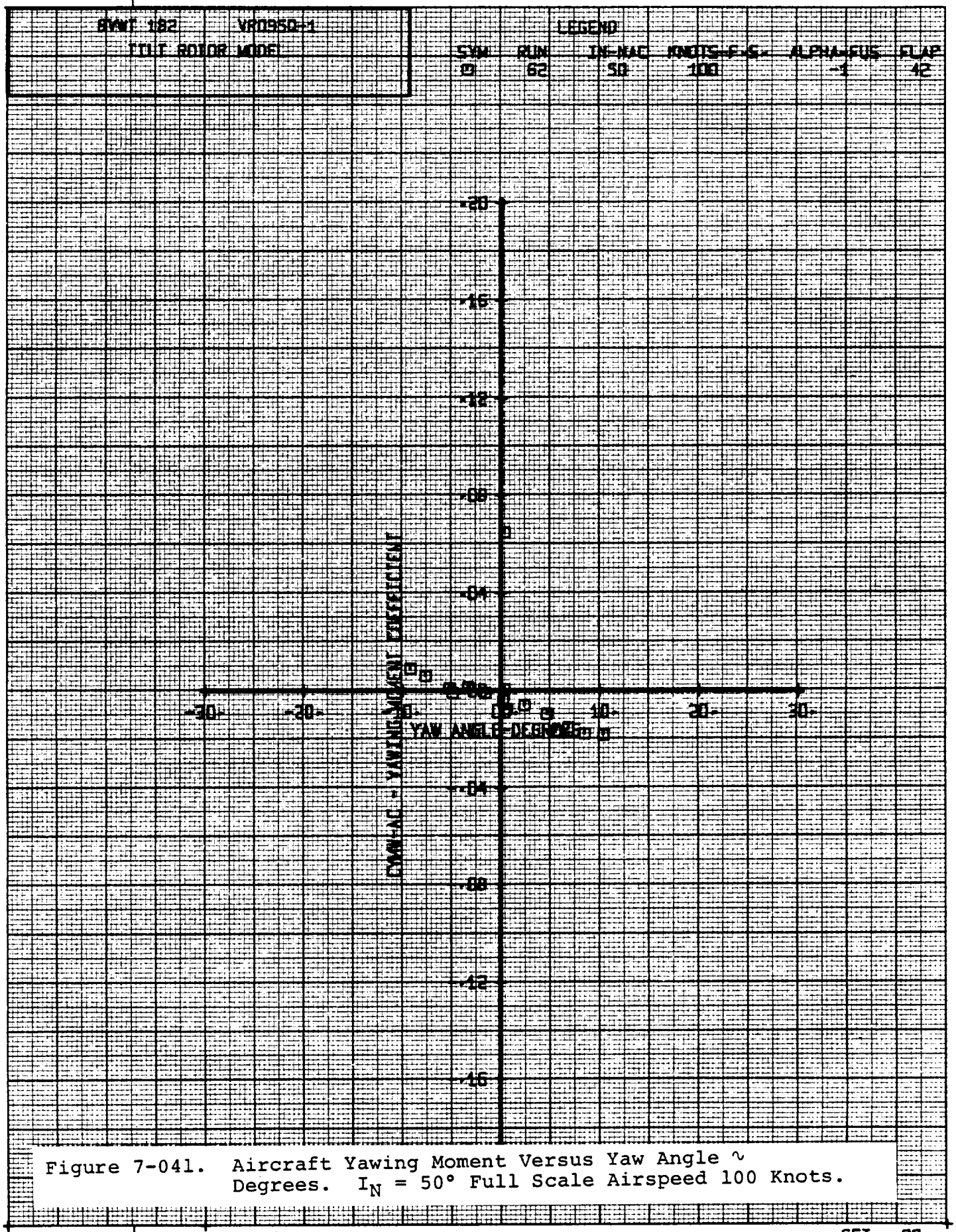


Figure 7-041. Aircraft Yawing Moment Versus Yaw Angle ψ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

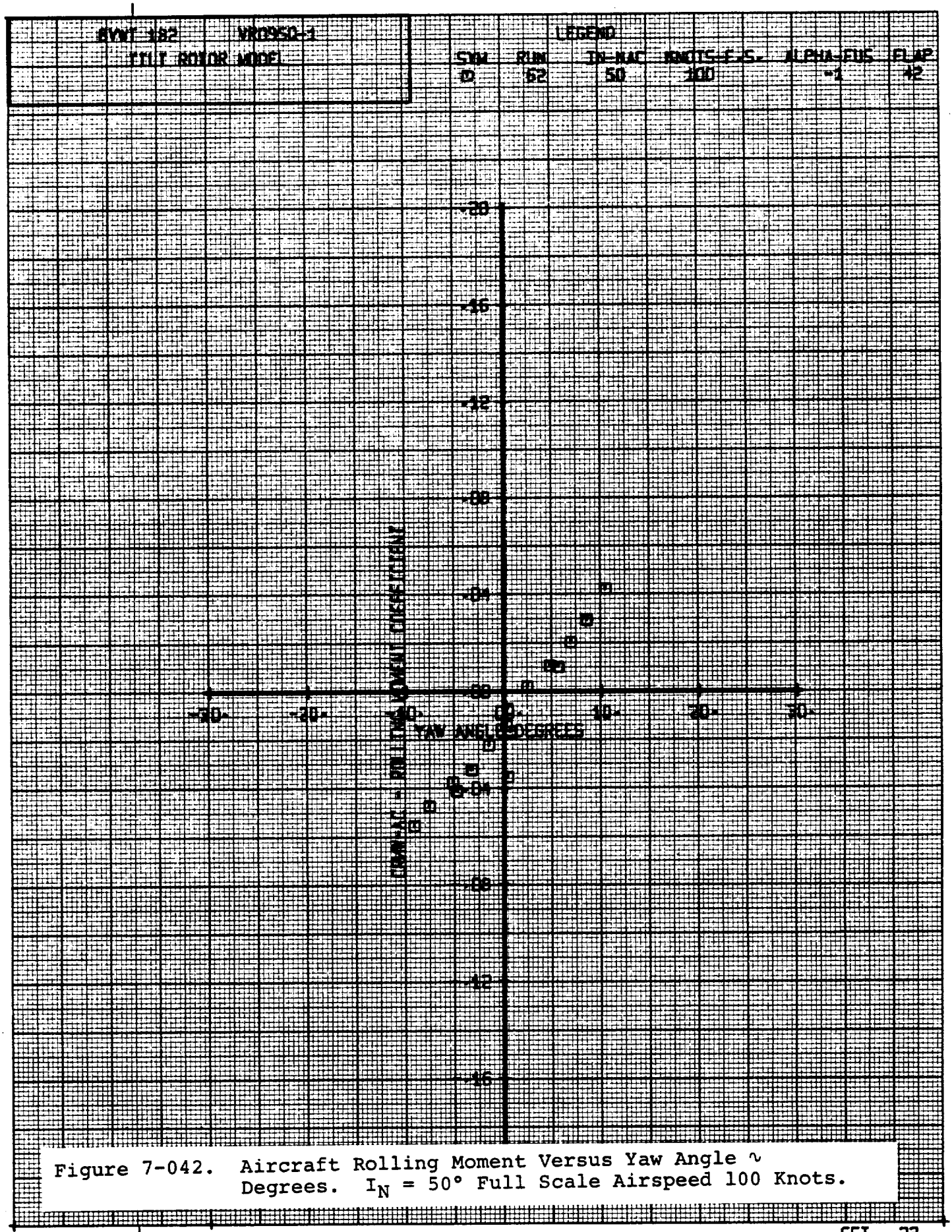


Figure 7-042. Aircraft Rolling Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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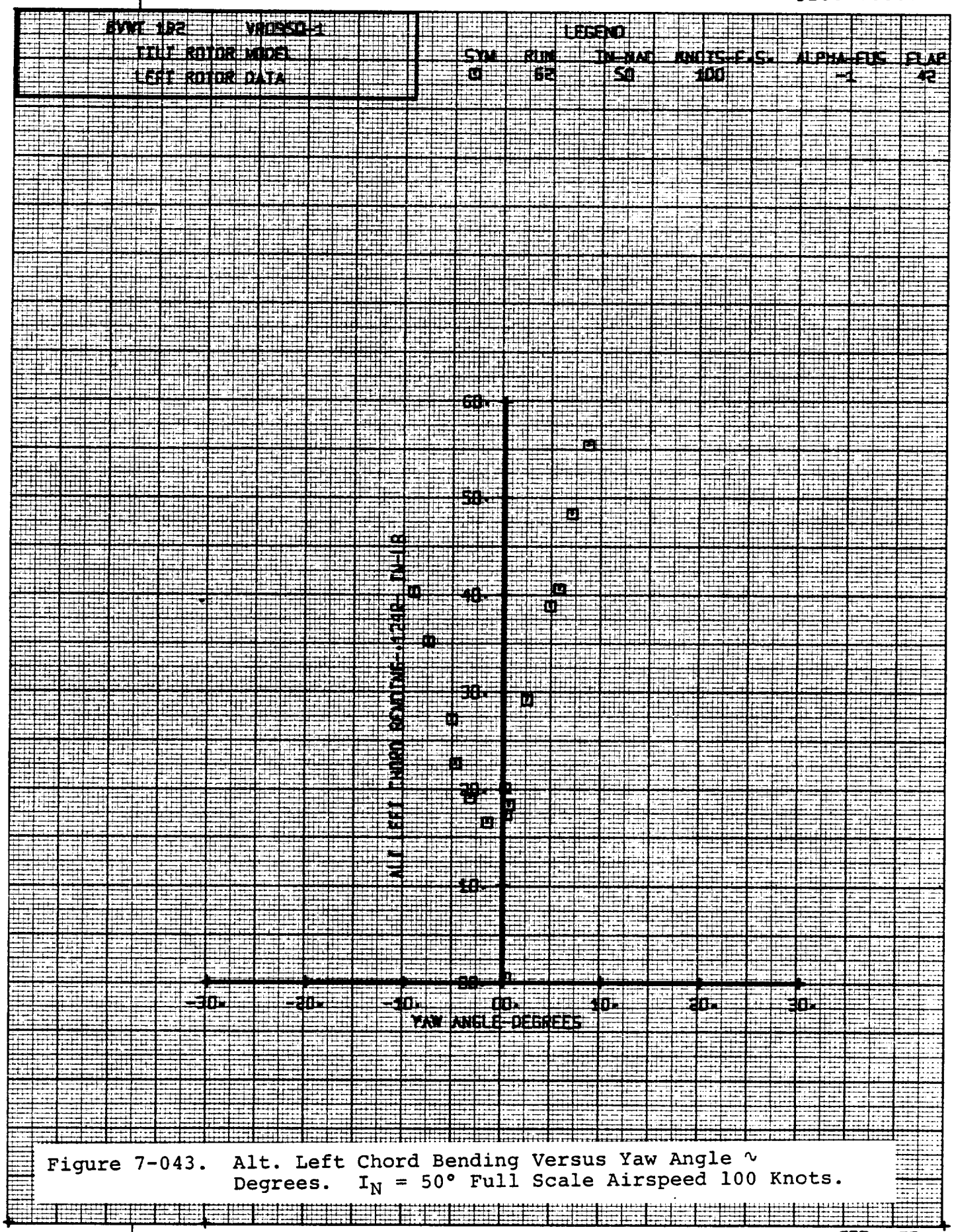


Figure 7-043. Alt. Left Chord Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

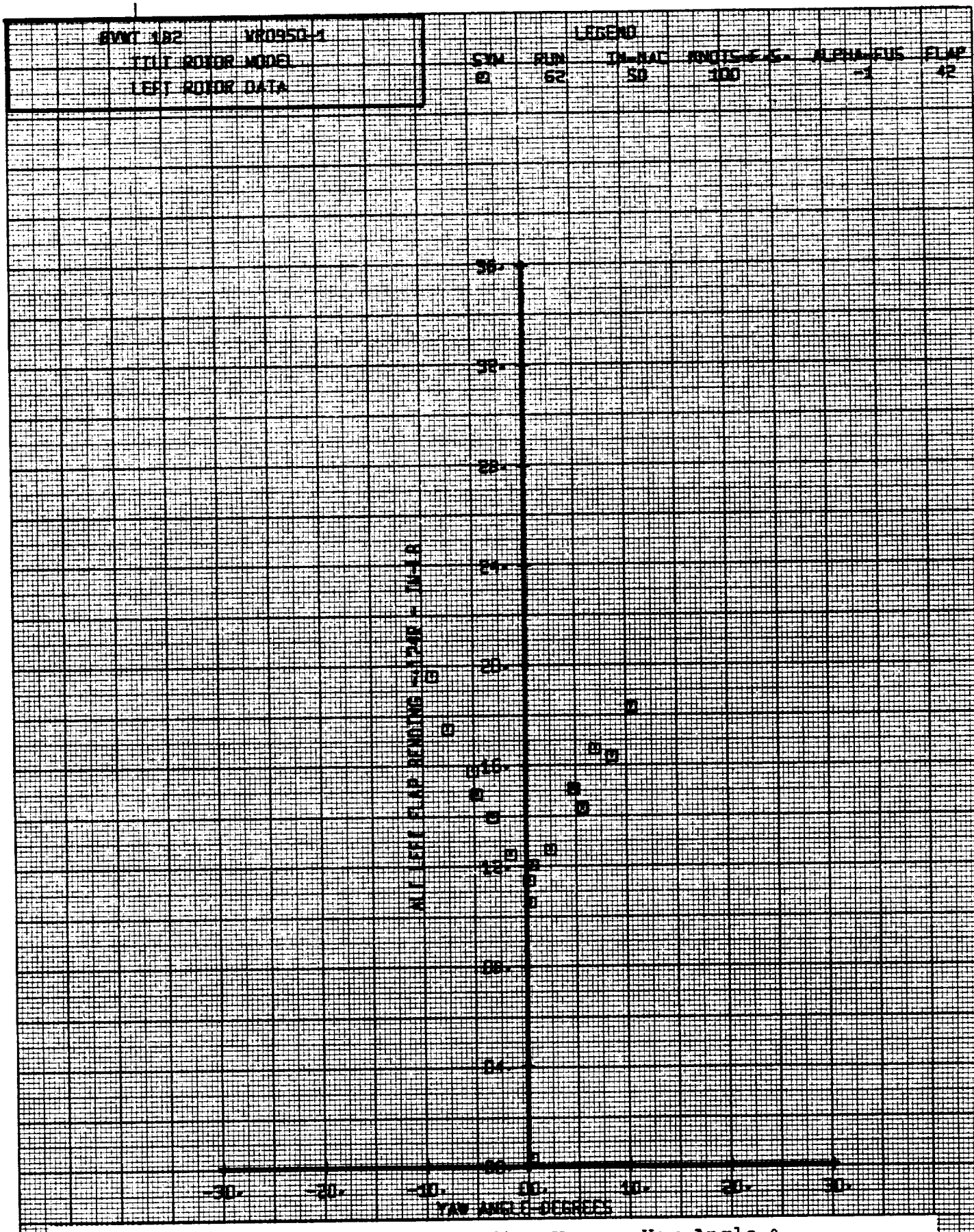


Figure 7-044. Alt. Left Flap Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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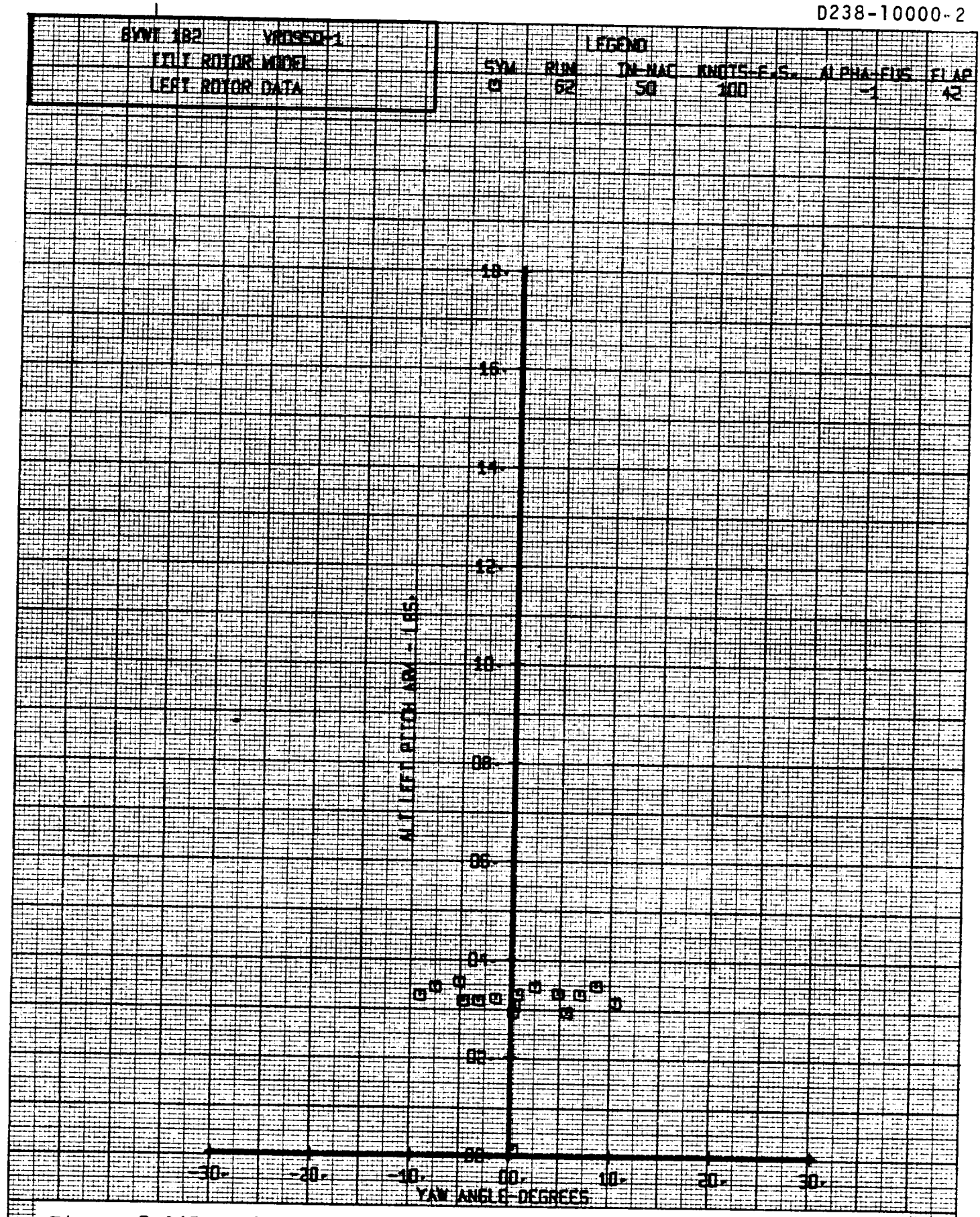


Figure 7-045. Alt. Left Pitch Link Load Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

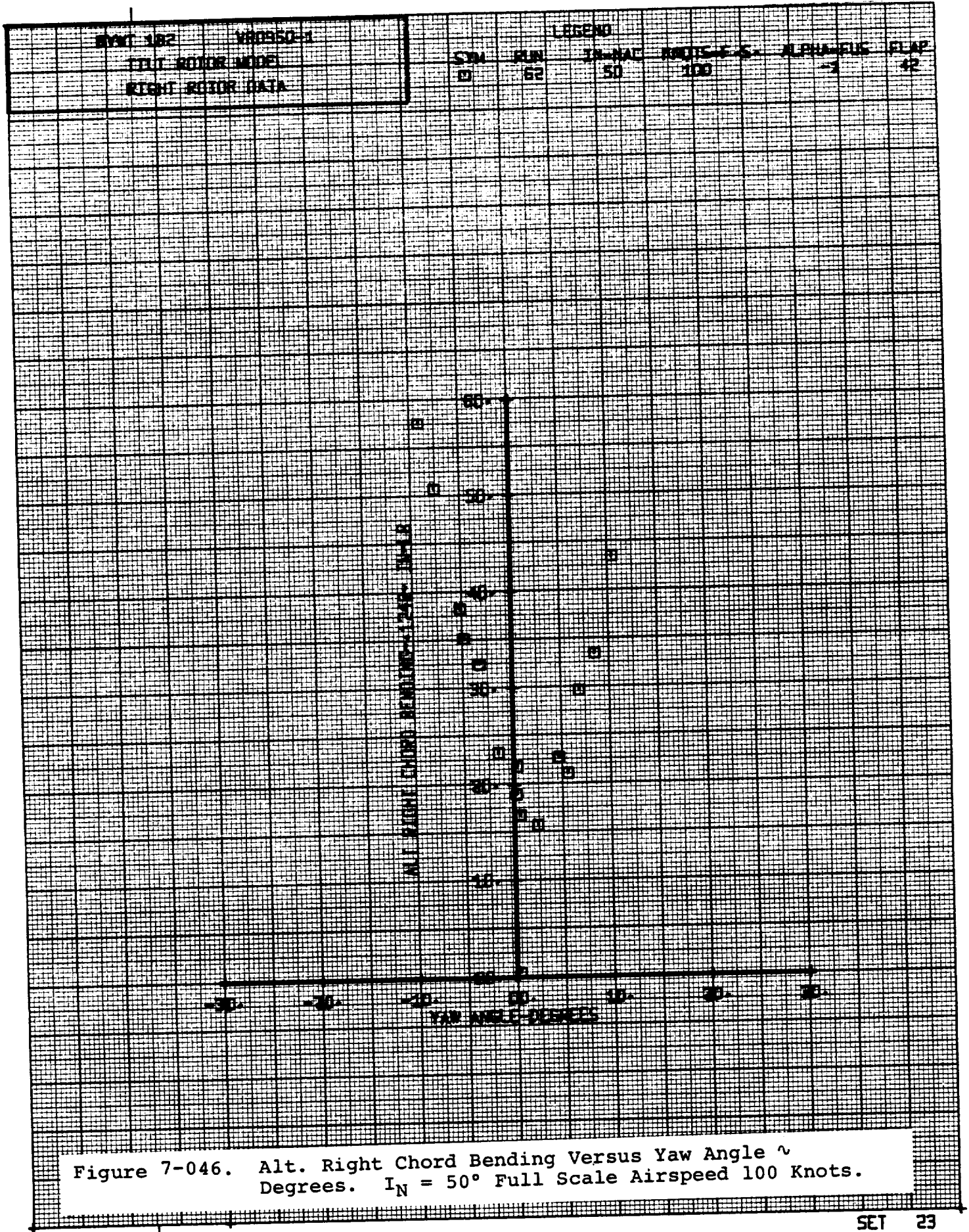


Figure 7-046. Alt. Right Chord Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

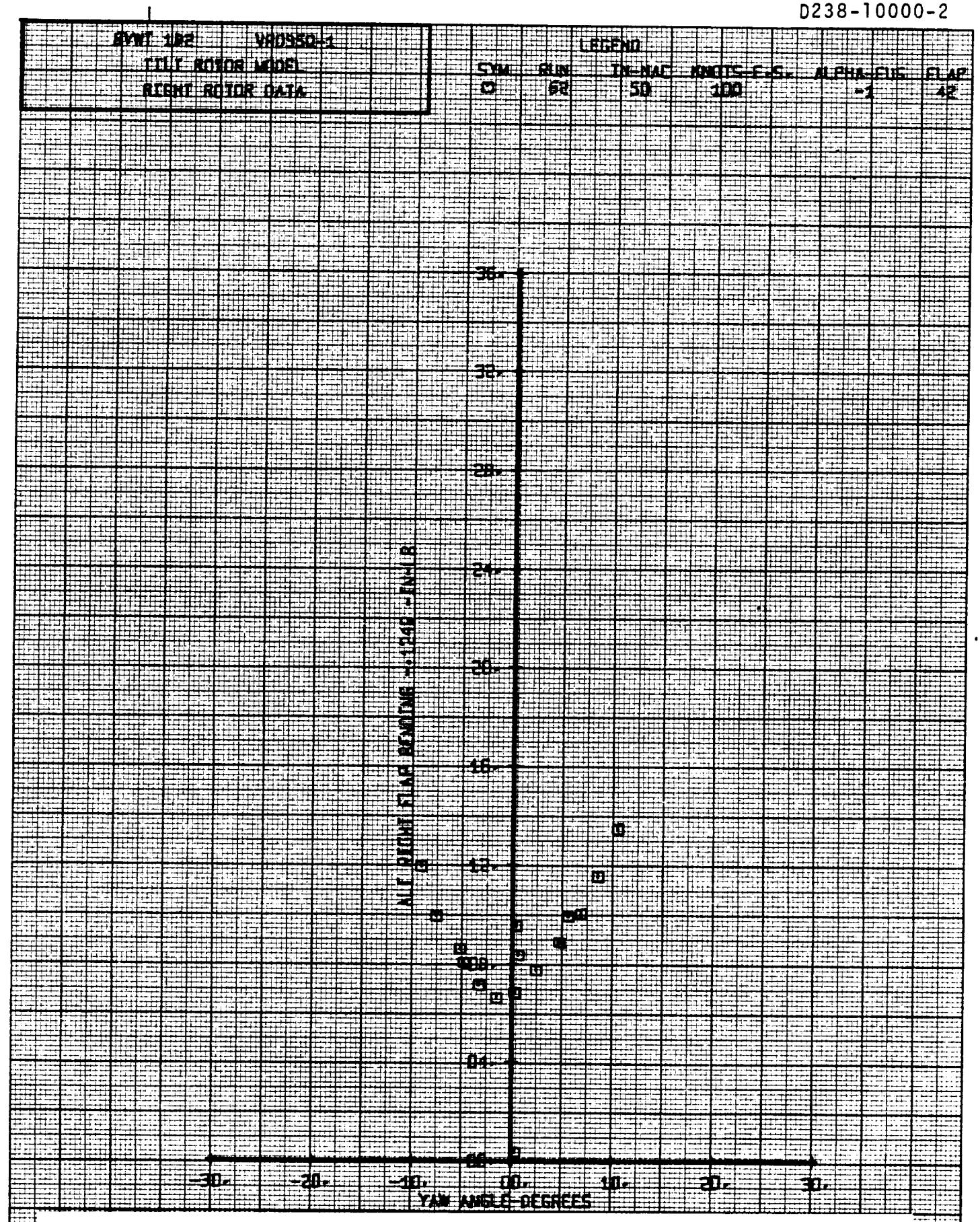


Figure 7-047. Alt. Right Flap Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

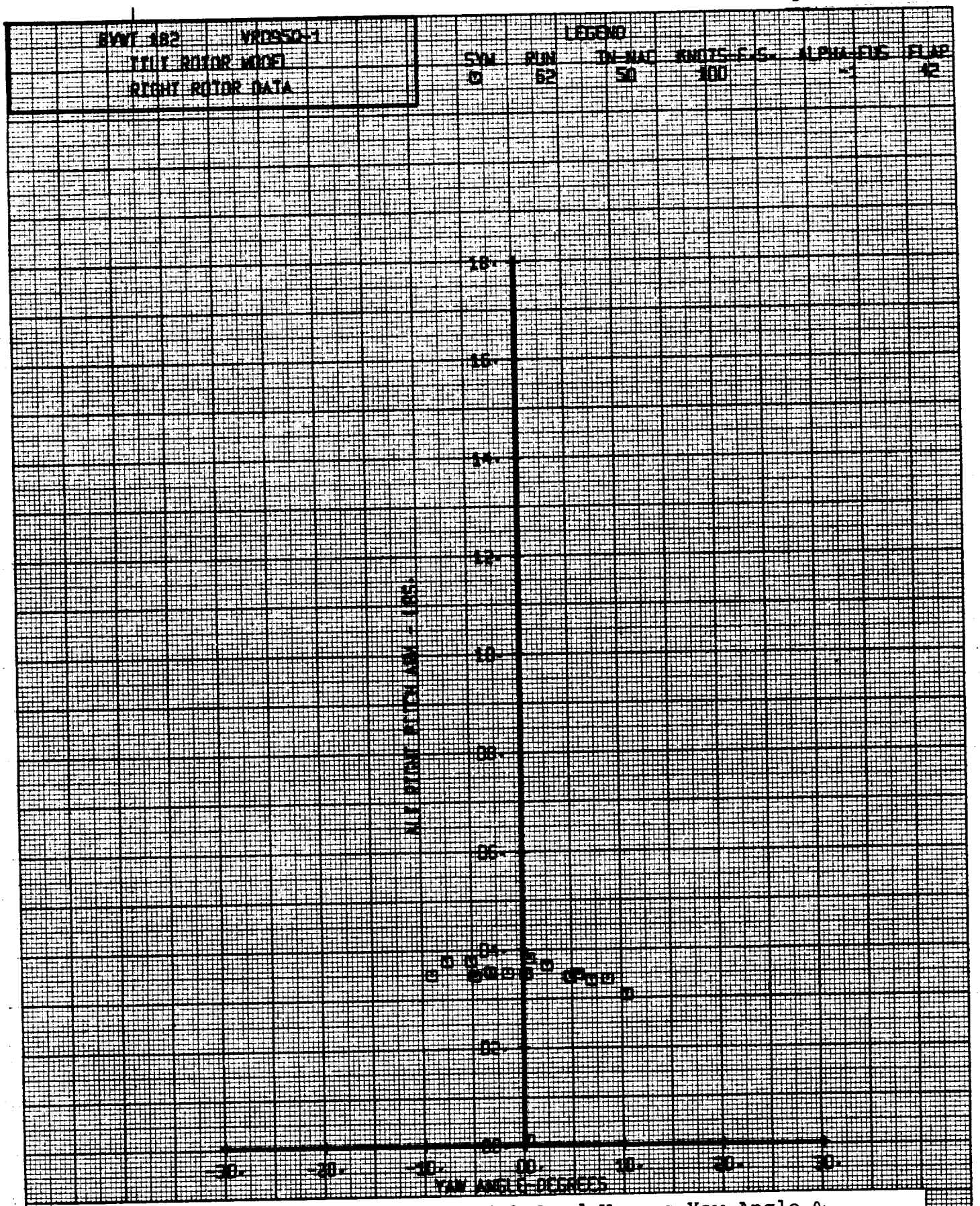


Figure 7-048. Alt. Right Pitch Link Load Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

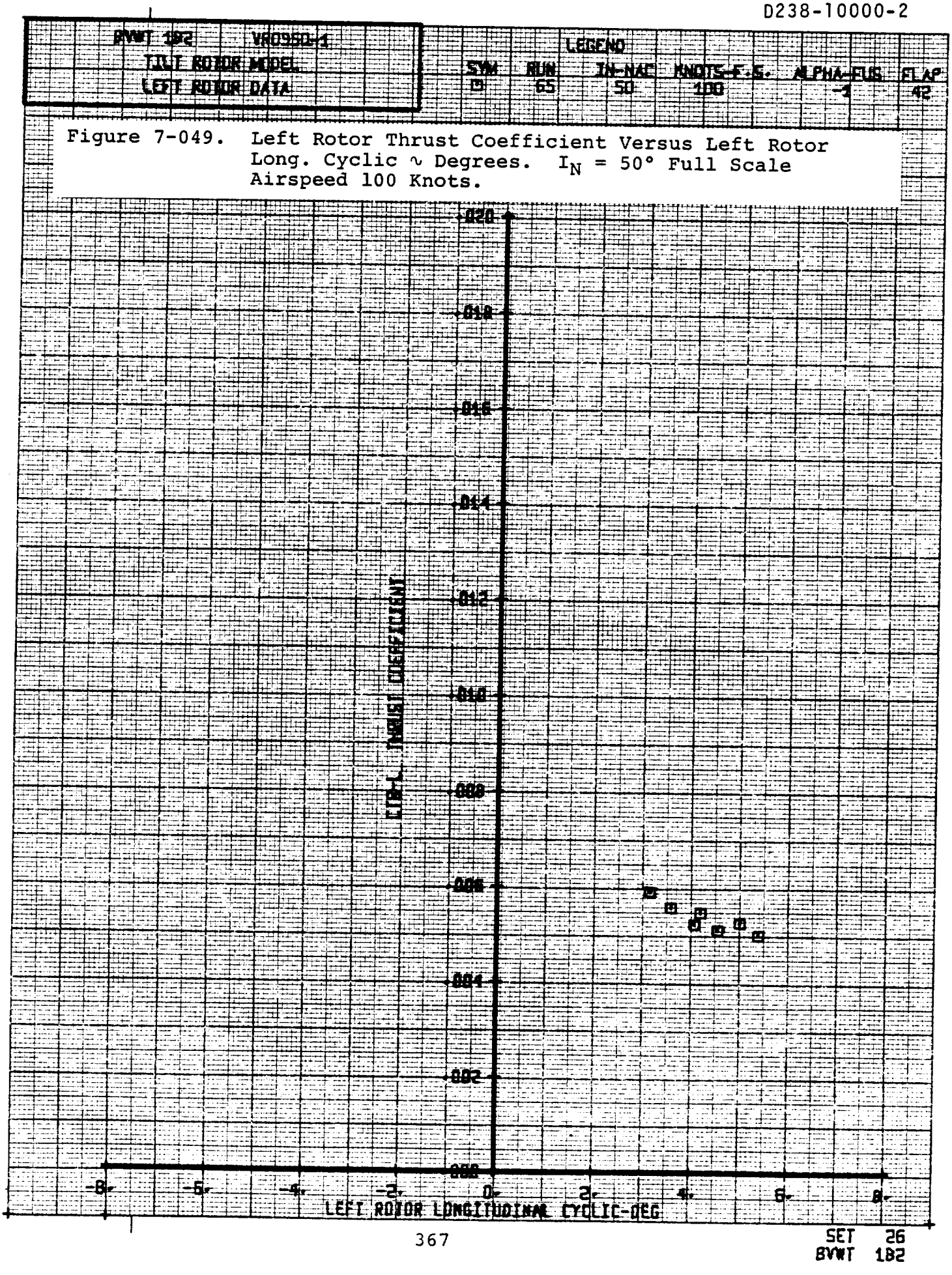


Figure 7-049. Left Rotor Thrust Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

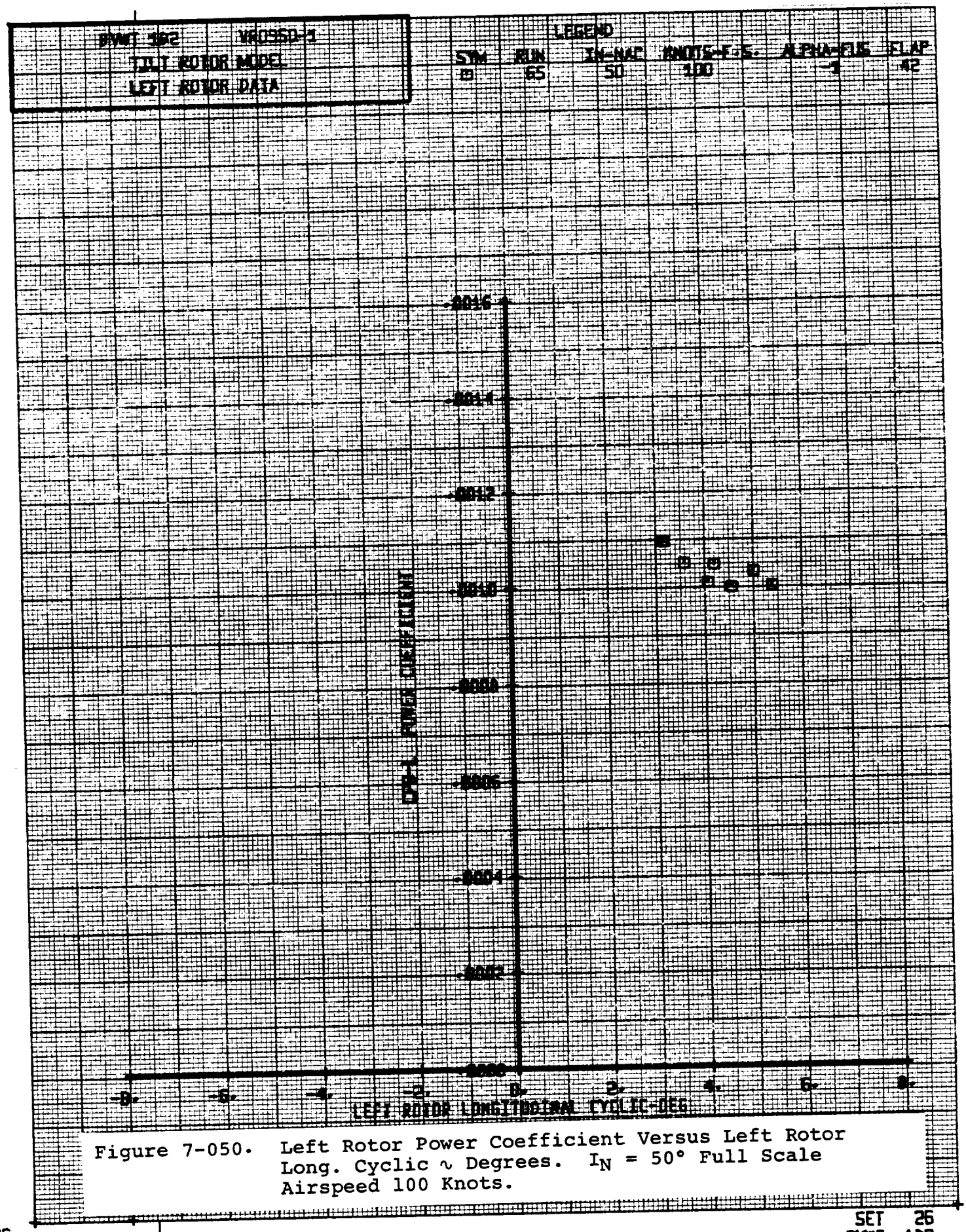


Figure 7-050. Left Rotor Power Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

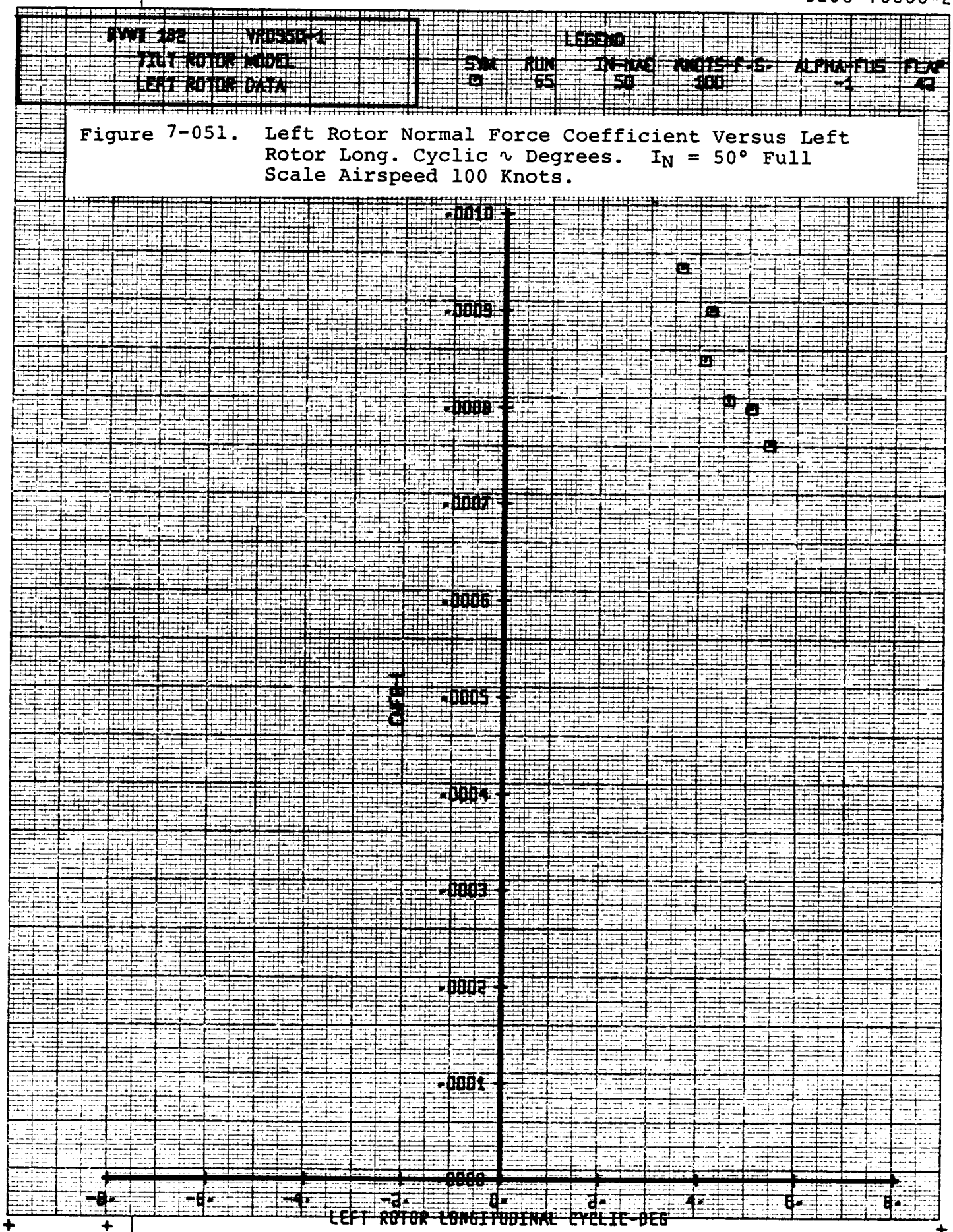


Figure 7-051. Left Rotor Normal Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

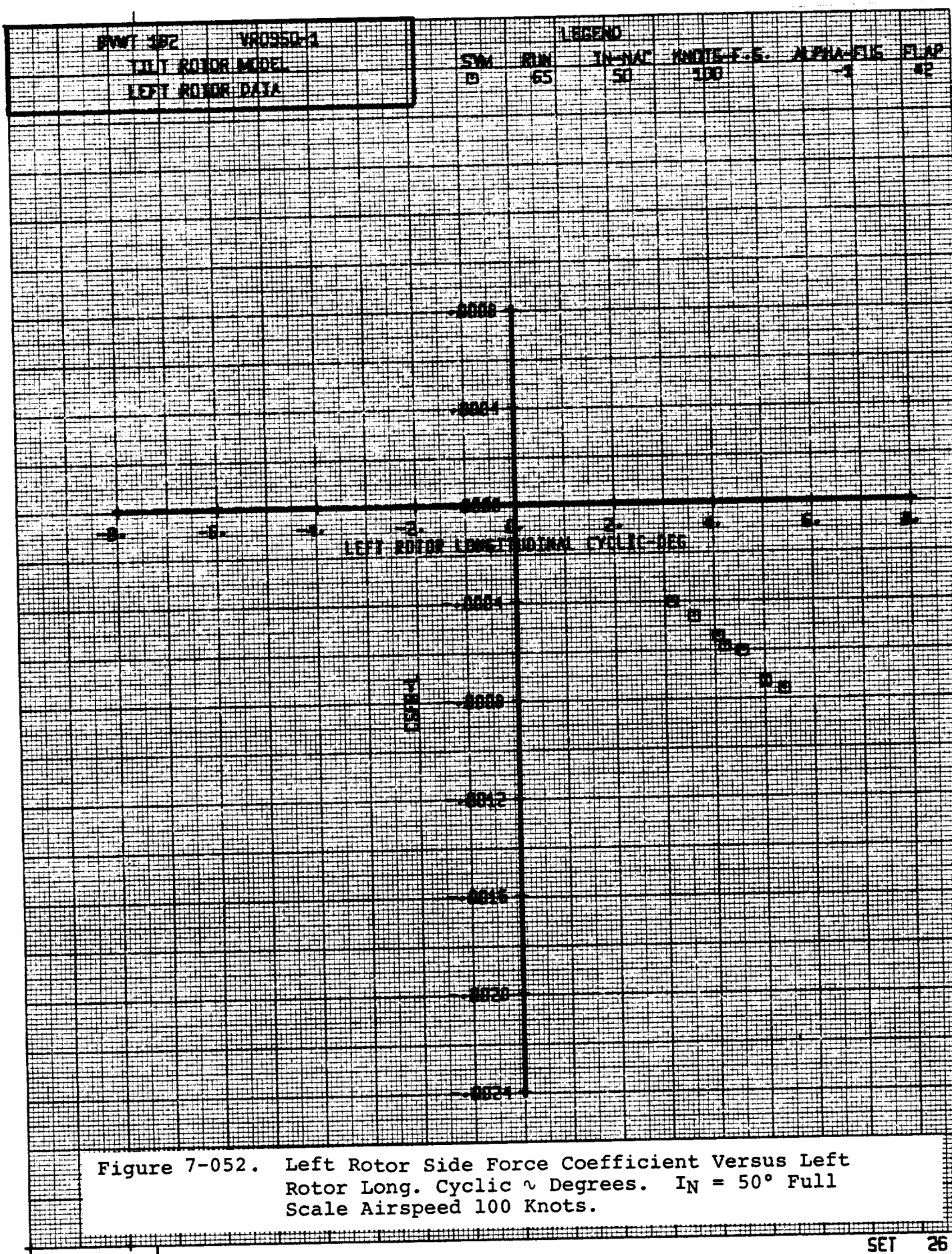


Figure 7-052. Left Rotor Side Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

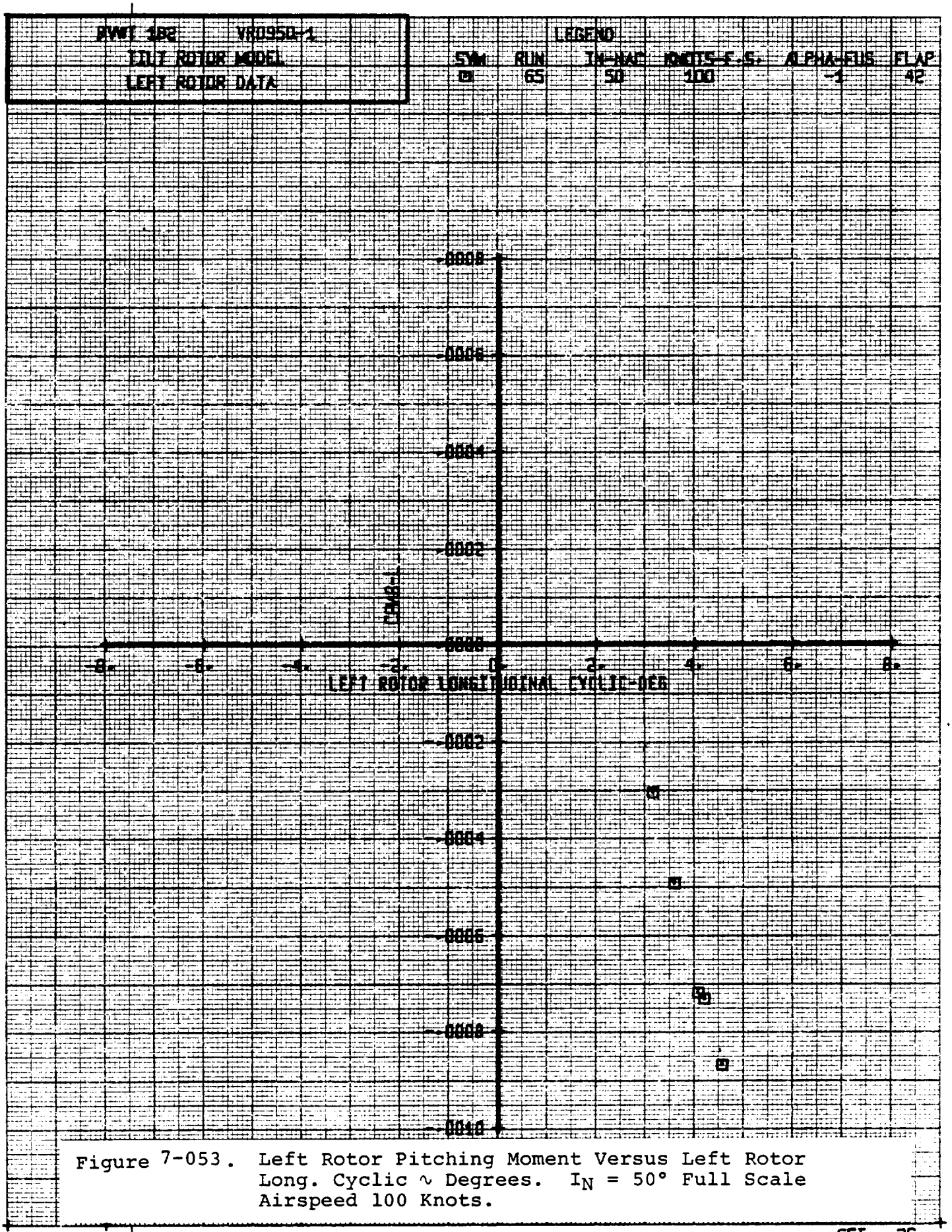


Figure 7-053. Left Rotor Pitching Moment Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 26
BVWT 182

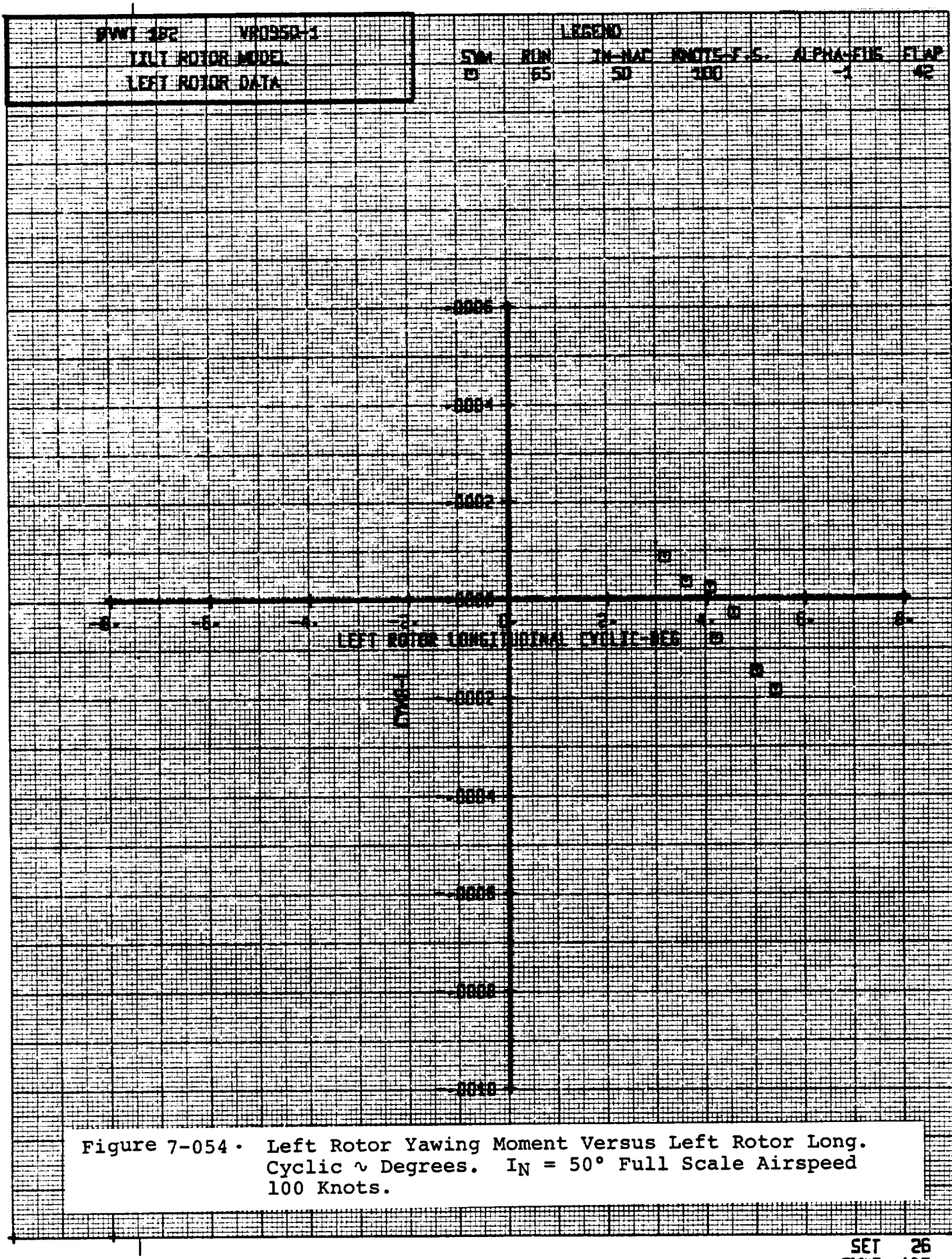
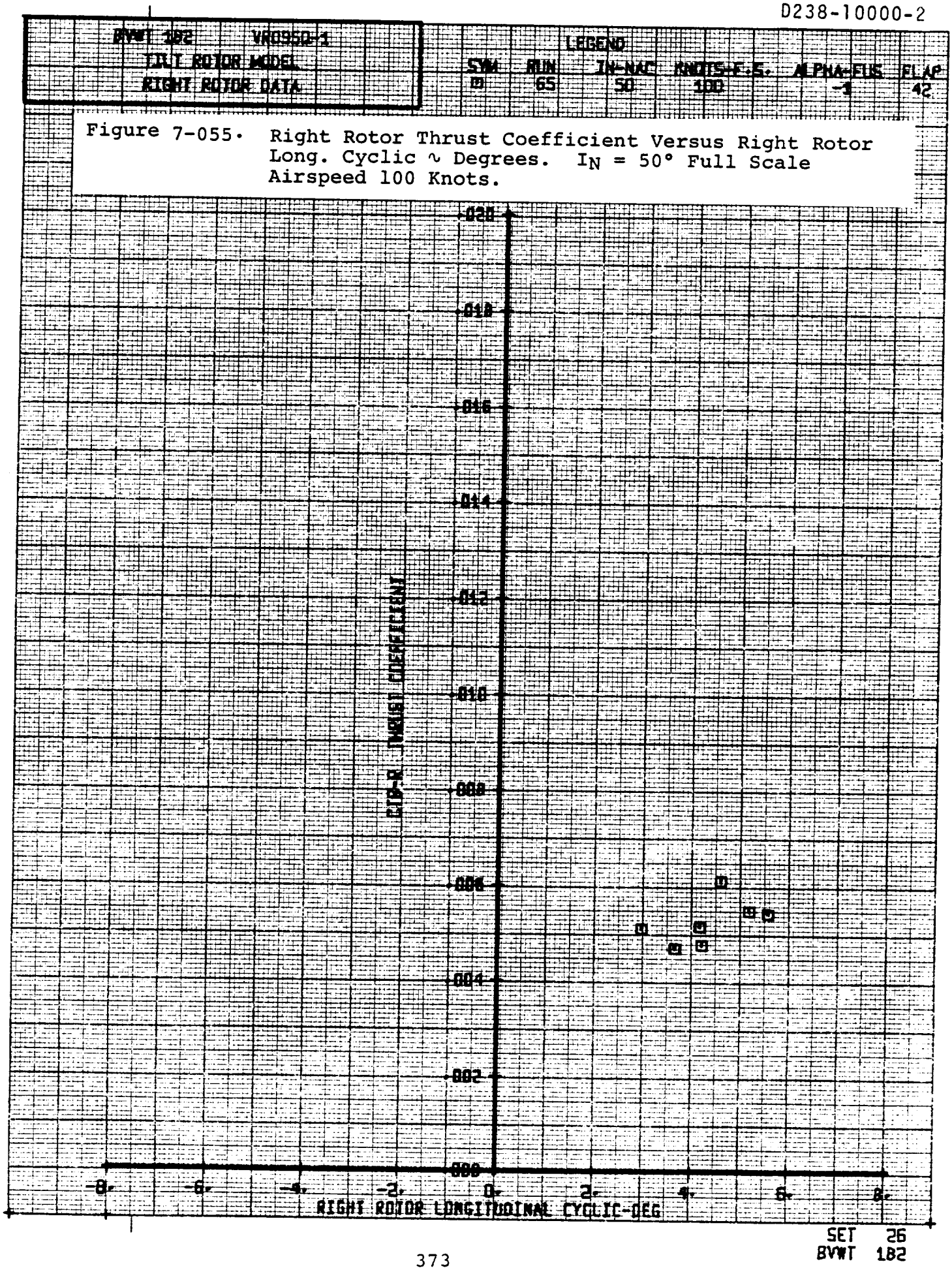


Figure 7-054. Left Rotor Yawing Moment Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.



FT 26
1 182

SET 26
BVWT 182

Figure 7-055. Right Rotor Thrust Coefficient Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

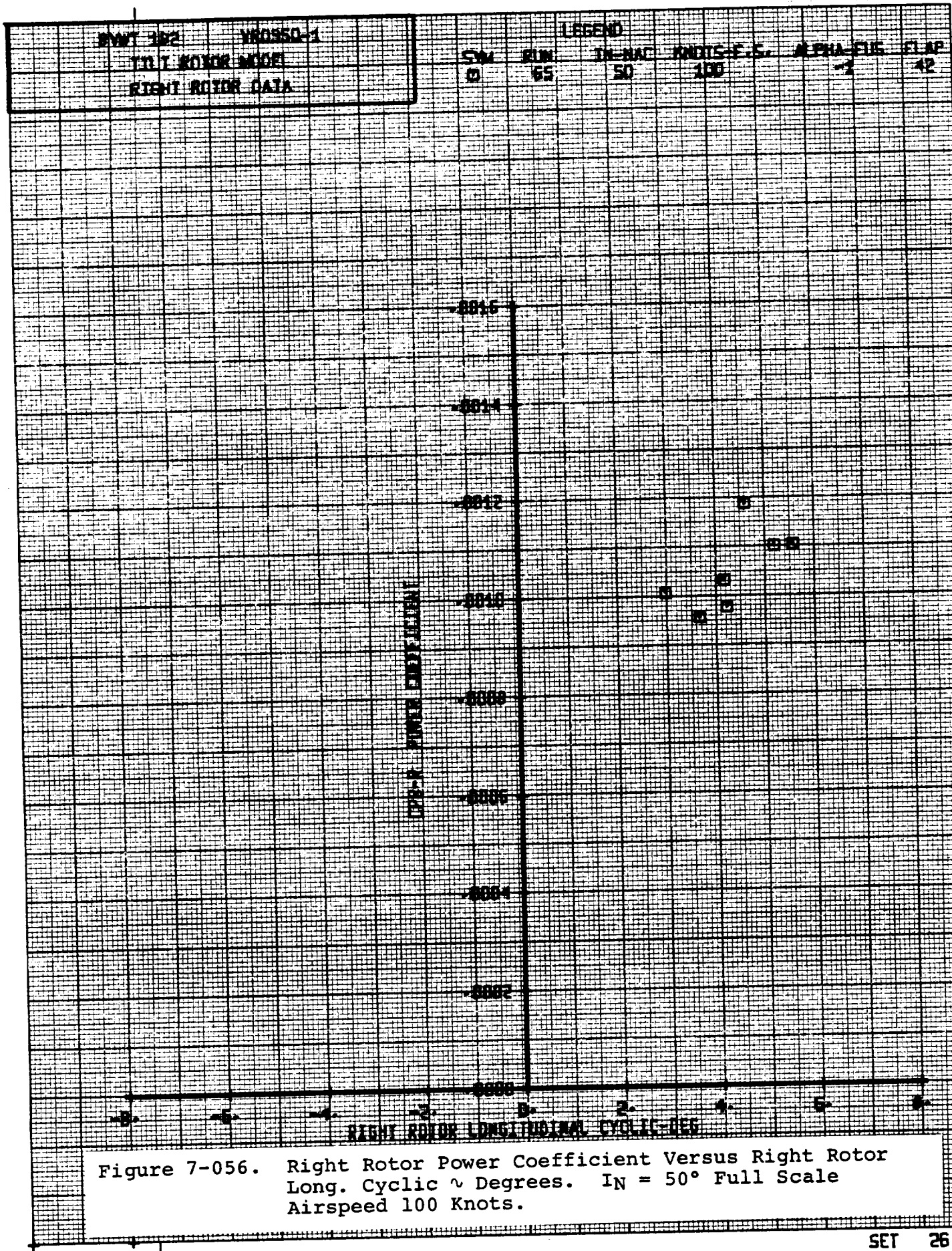


Figure 7-056. Right Rotor Power Coefficient Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 26
BVWT 182

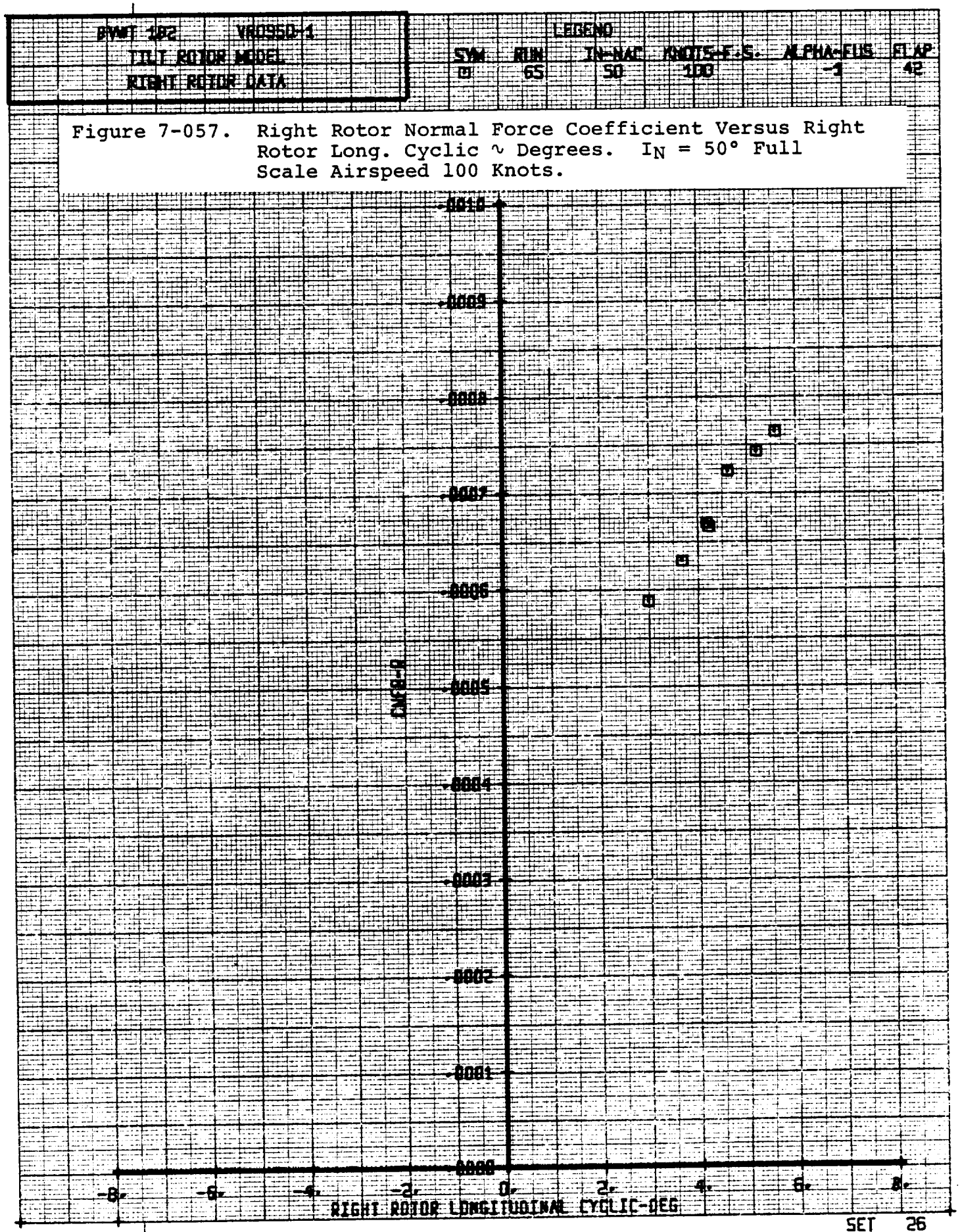


Figure 7-057. Right Rotor Normal Force Coefficient Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

FT 26
1 182

SET 26
BVWT 182

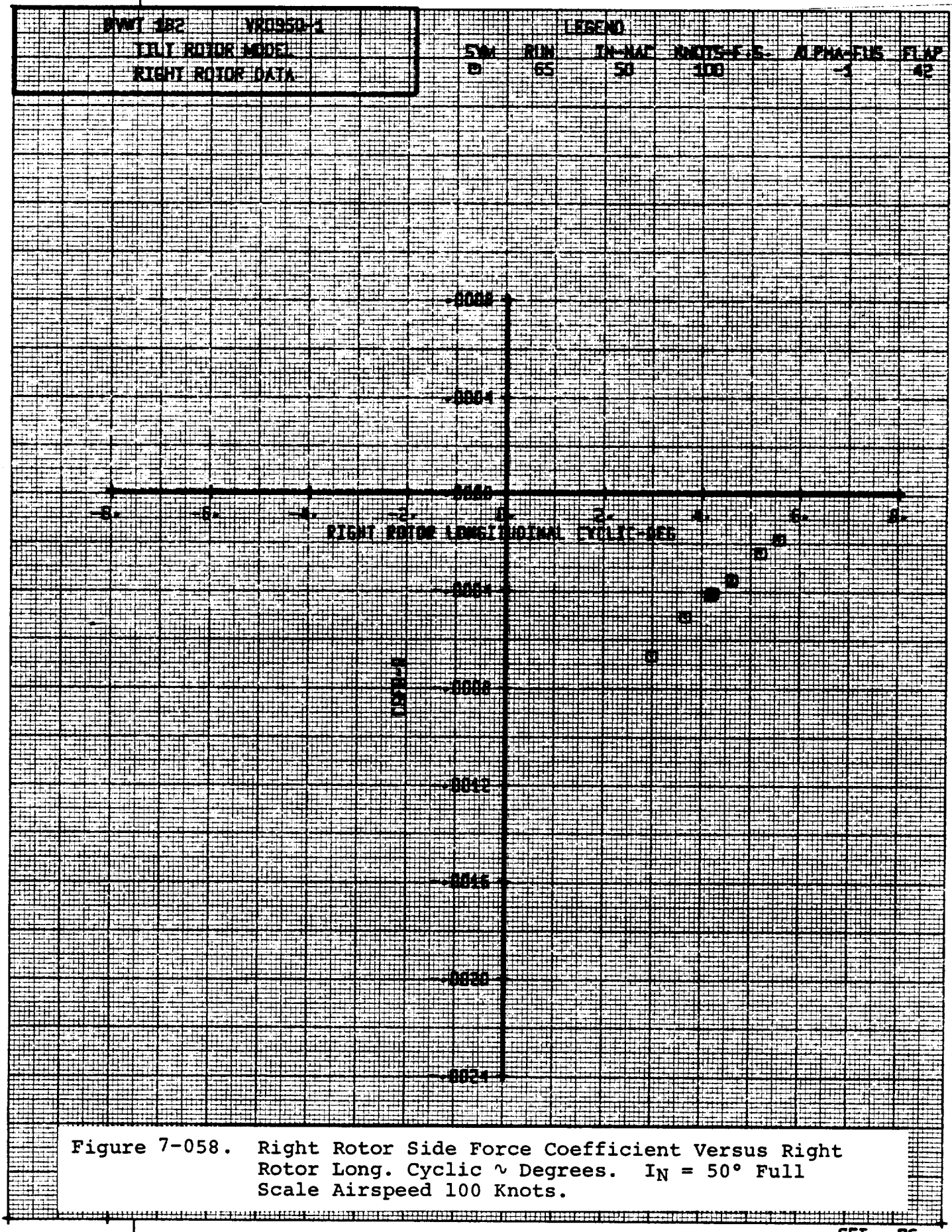


Figure 7-058. Right Rotor Side Force Coefficient Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

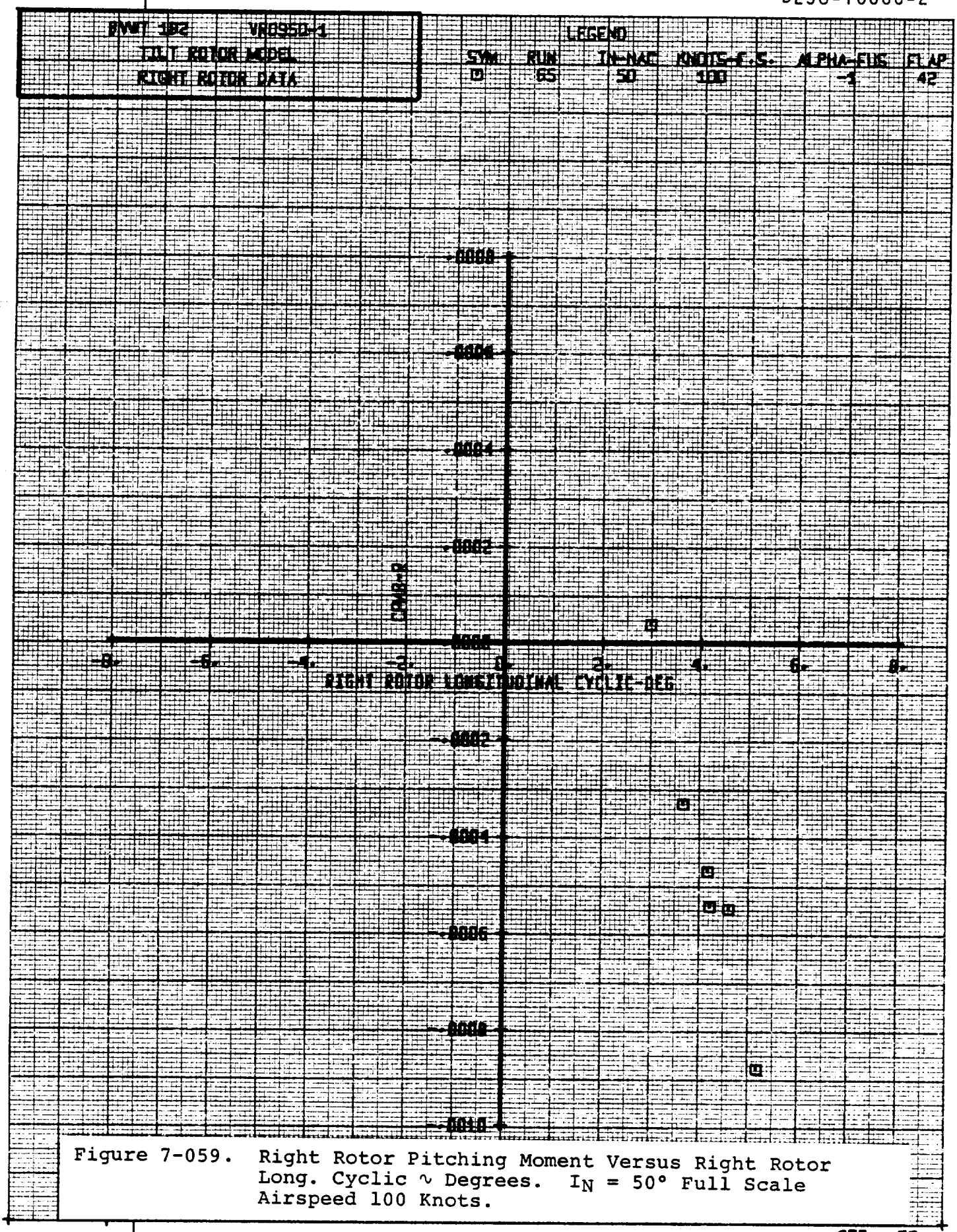


Figure 7-059. Right Rotor Pitching Moment Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

FT 26
182

SET 26
BVWT 182

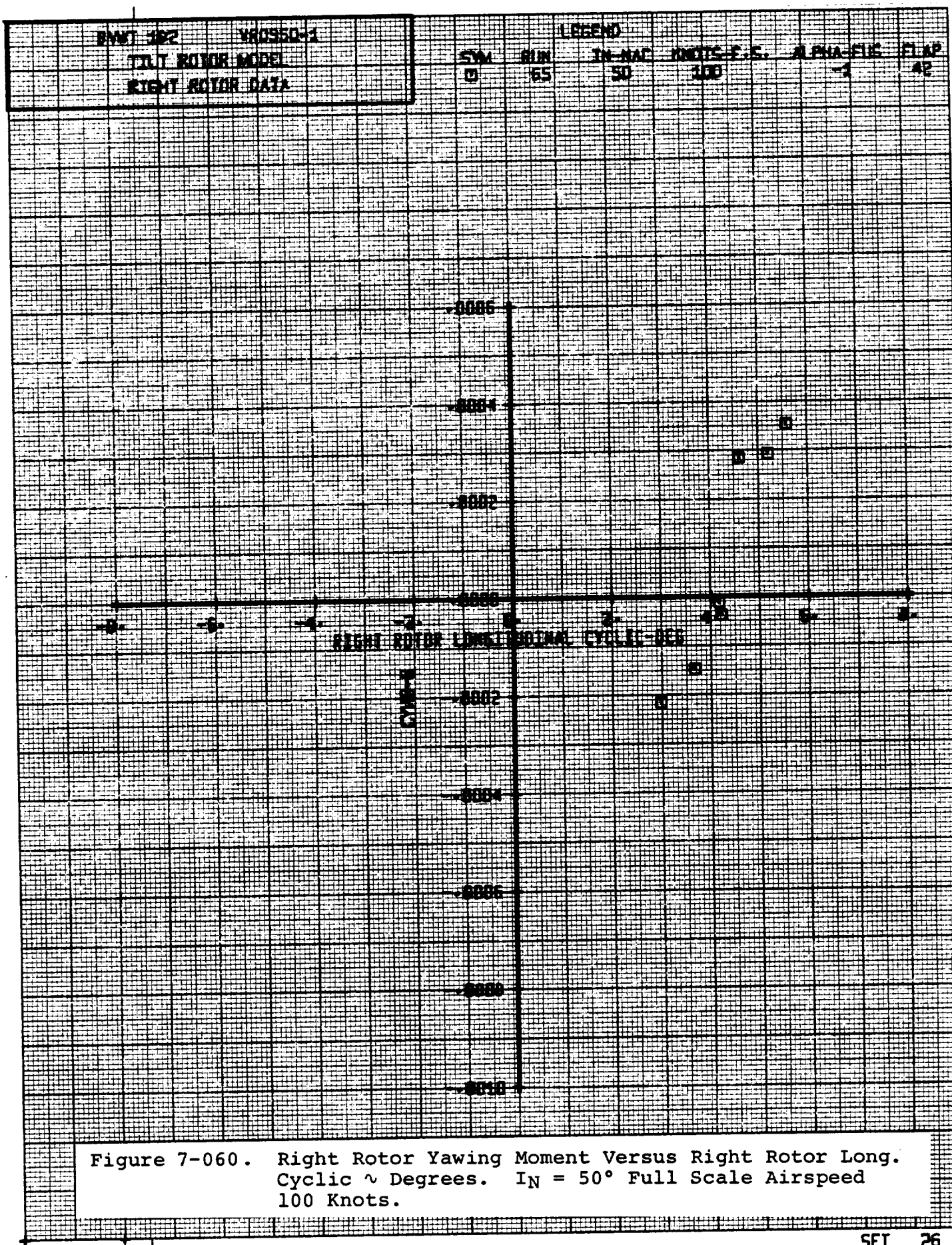


Figure 7-060. Right Rotor Yawing Moment Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 26
BVWT 182

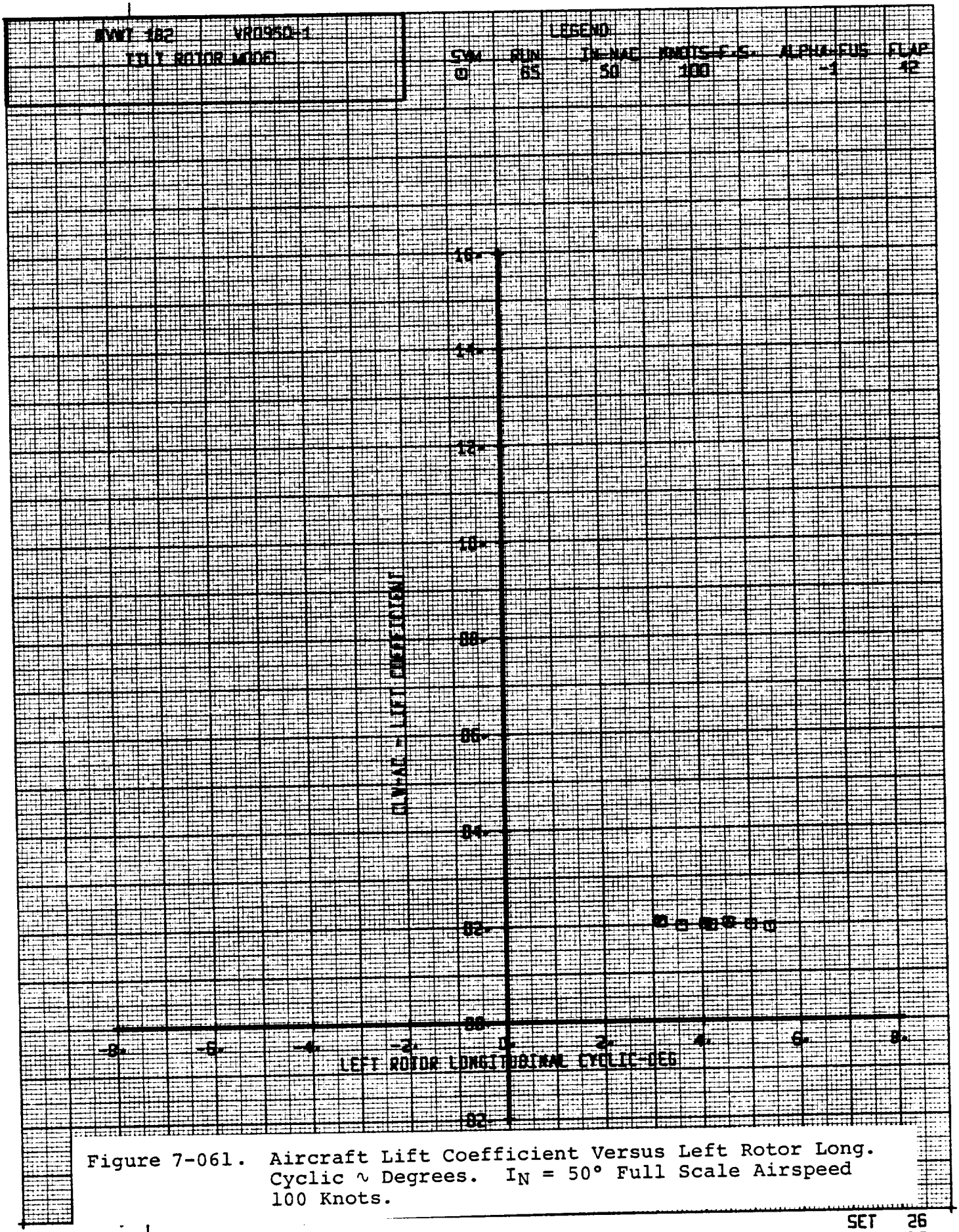


Figure 7-061. Aircraft Lift Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

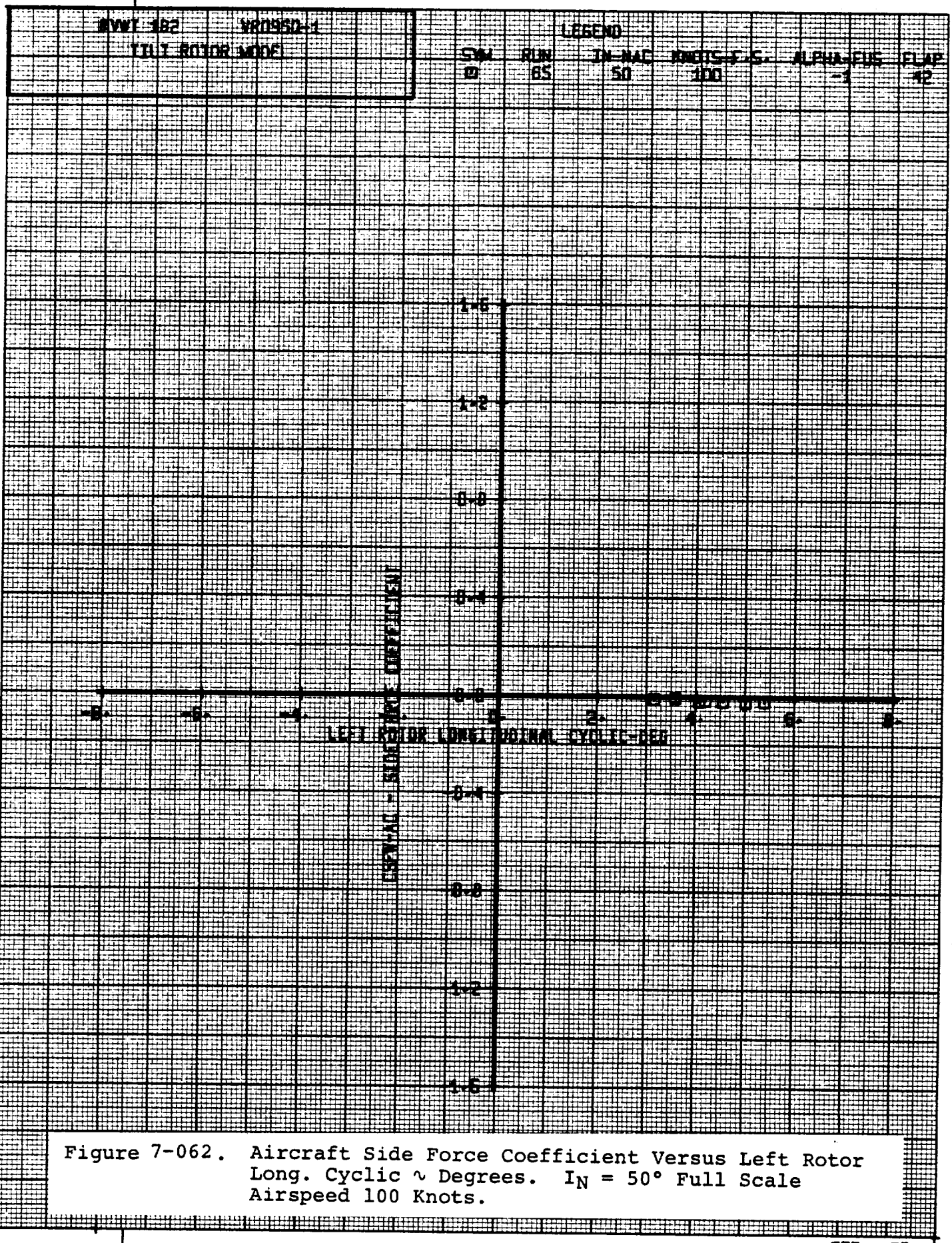


Figure 7-062. Aircraft Side Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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182

SET 26
BWT 182

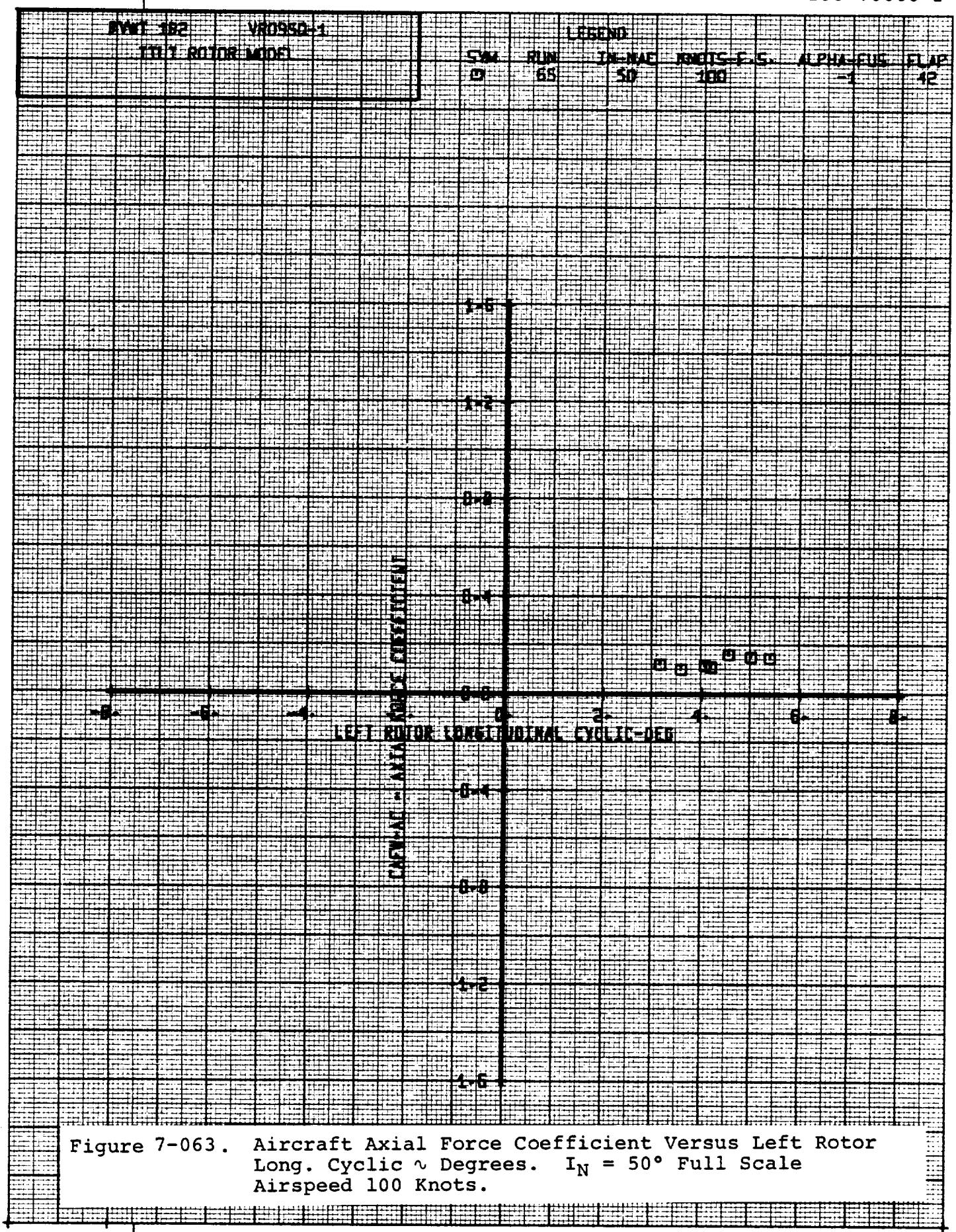


Figure 7-063. Aircraft Axial Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

ET 26
W 182

SET 26
BVWT 182

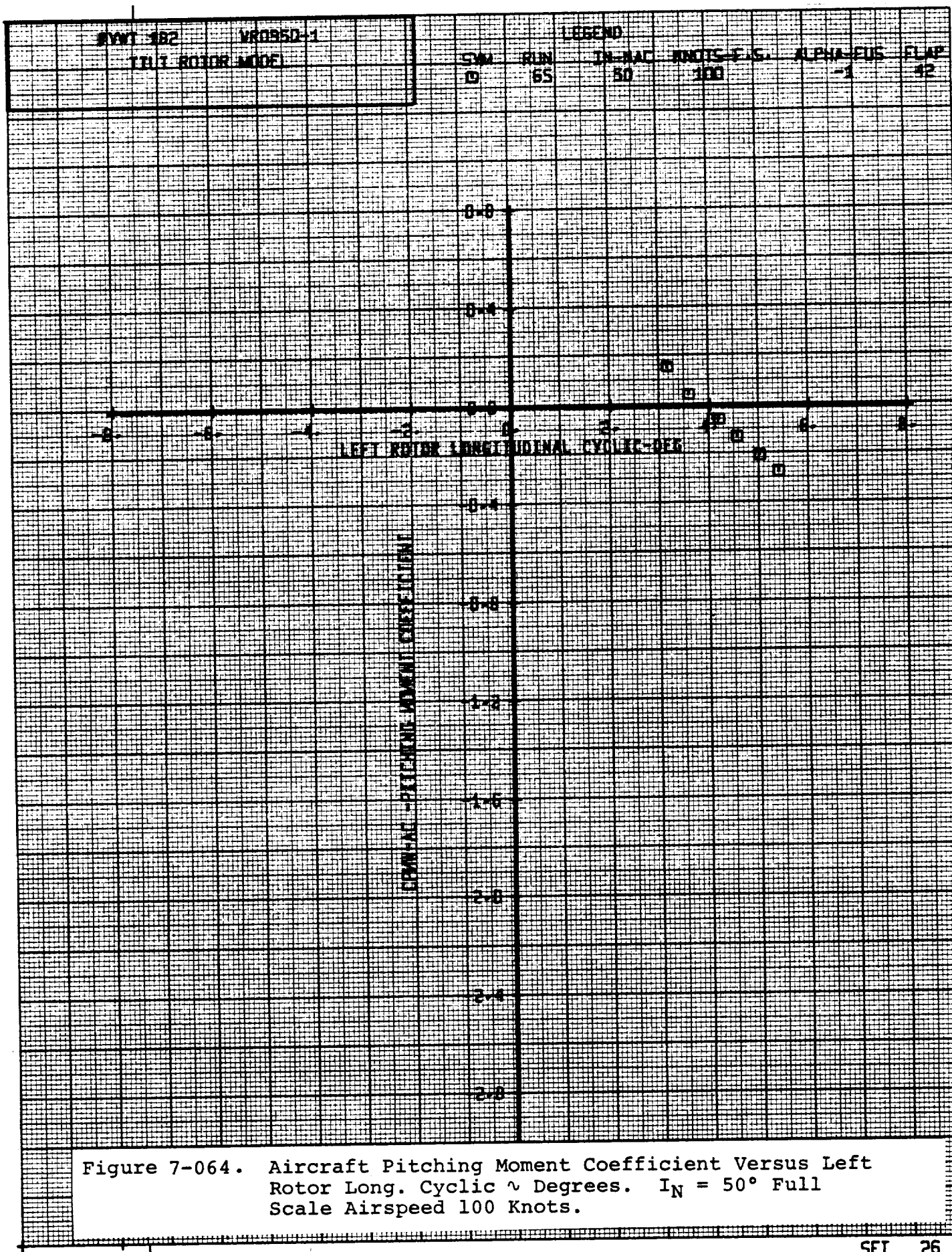


Figure 7-064. Aircraft Pitching Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 26
BVWT 182

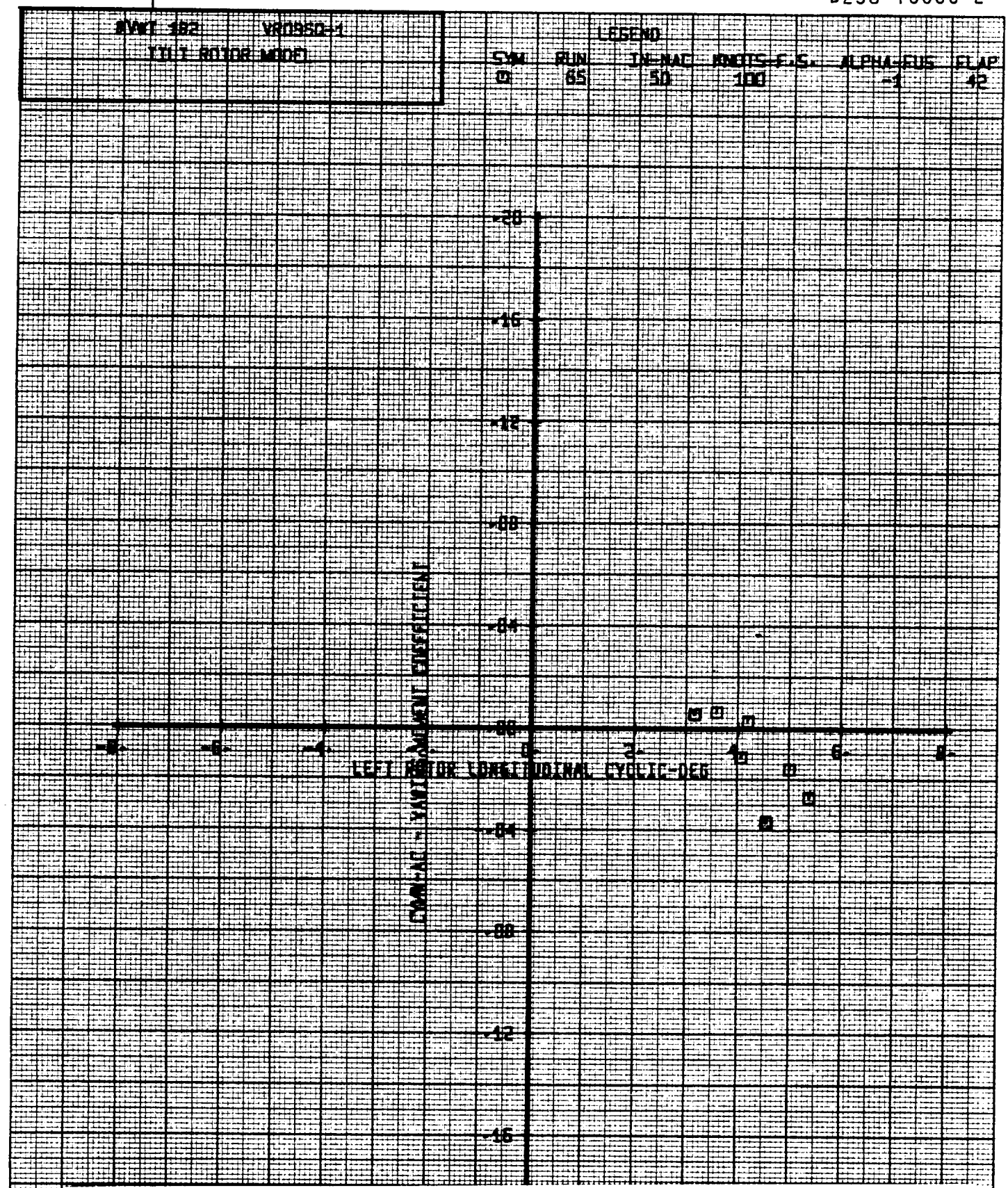


Figure 7-065. Aircraft Yawing Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

ET 26
W 182

SET 26
BVWT 182

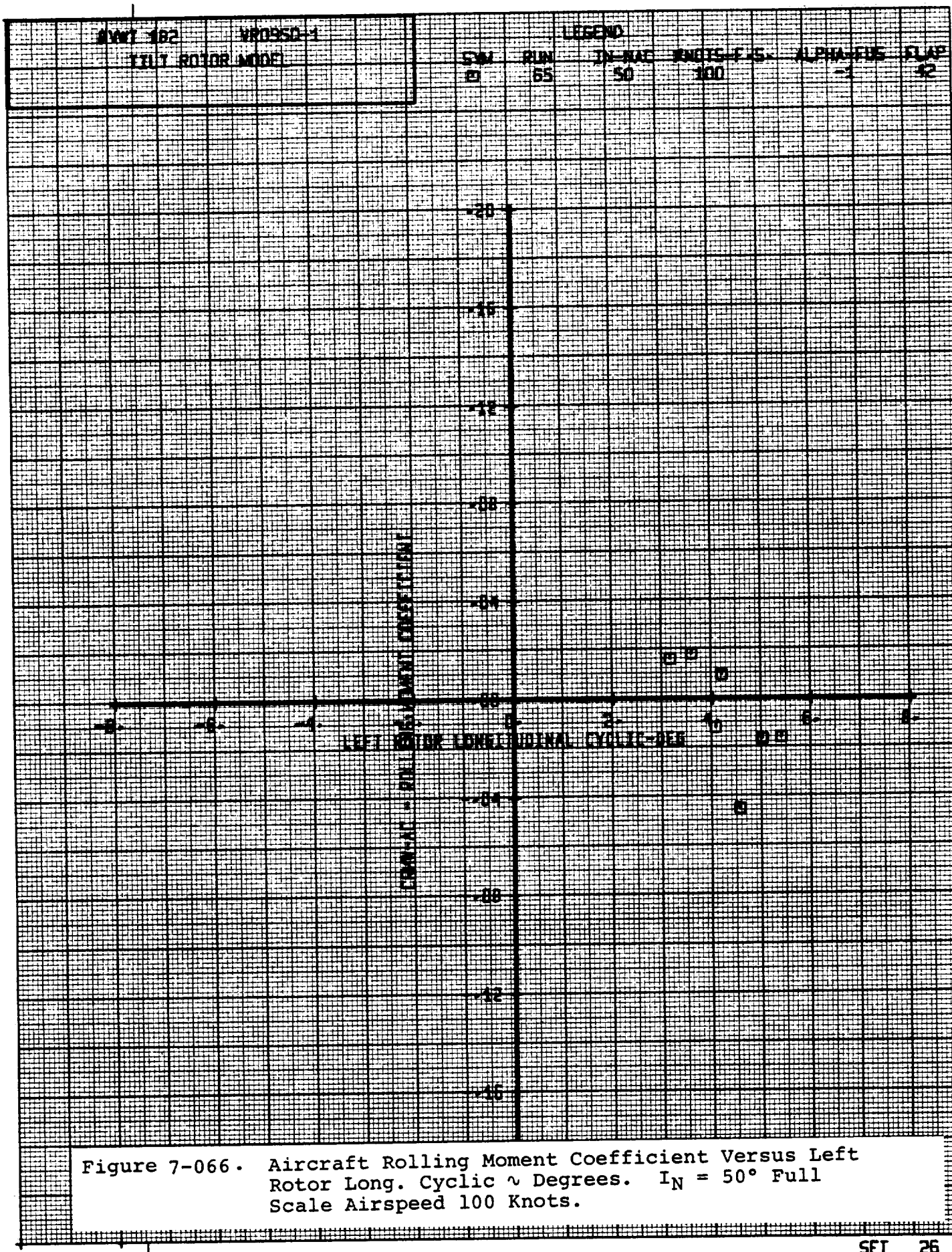


Figure 7-066. Aircraft Rolling Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

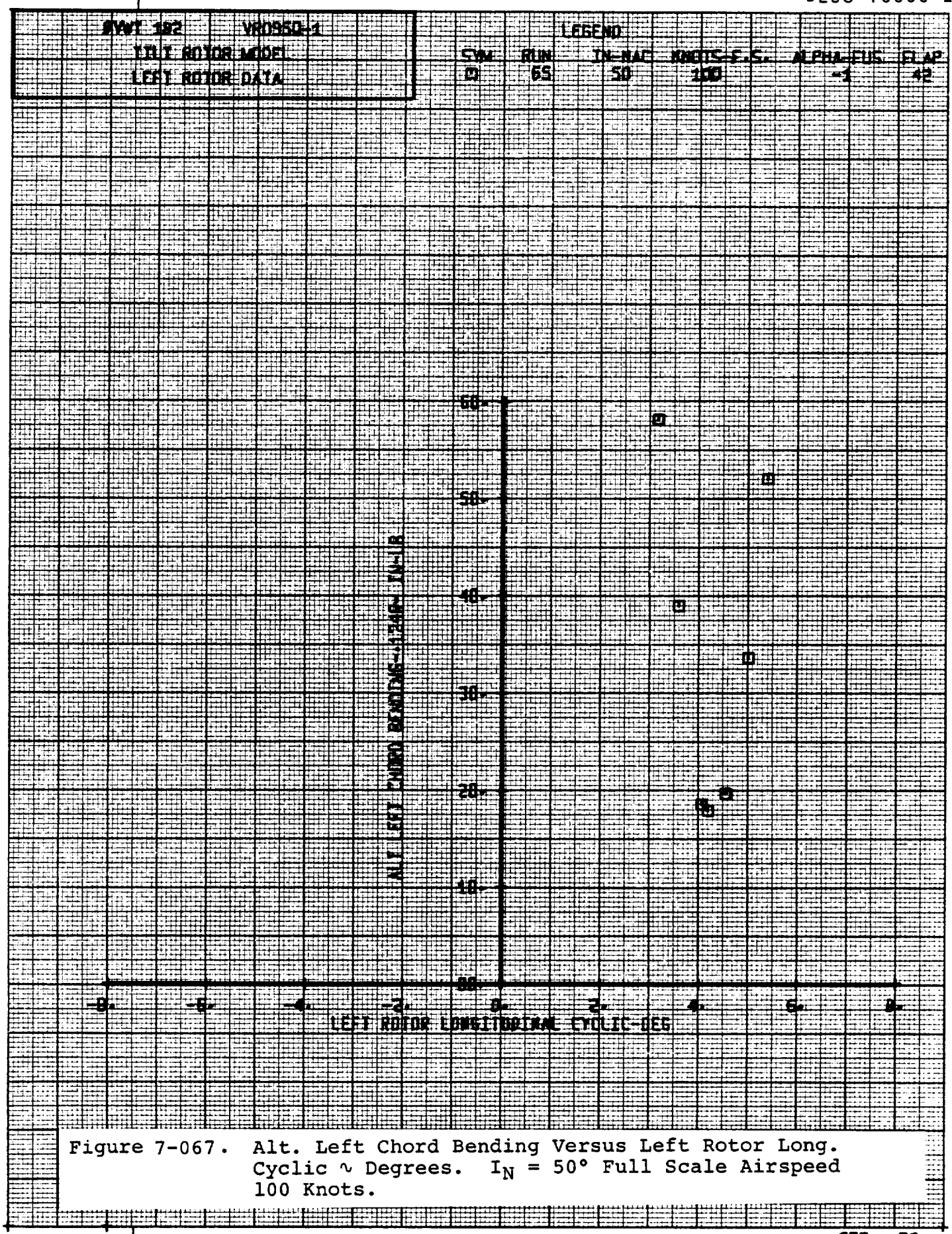


Figure 7-067. Alt. Left Chord Bending Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 26
BVWT 182

SET 26
BVWT 182

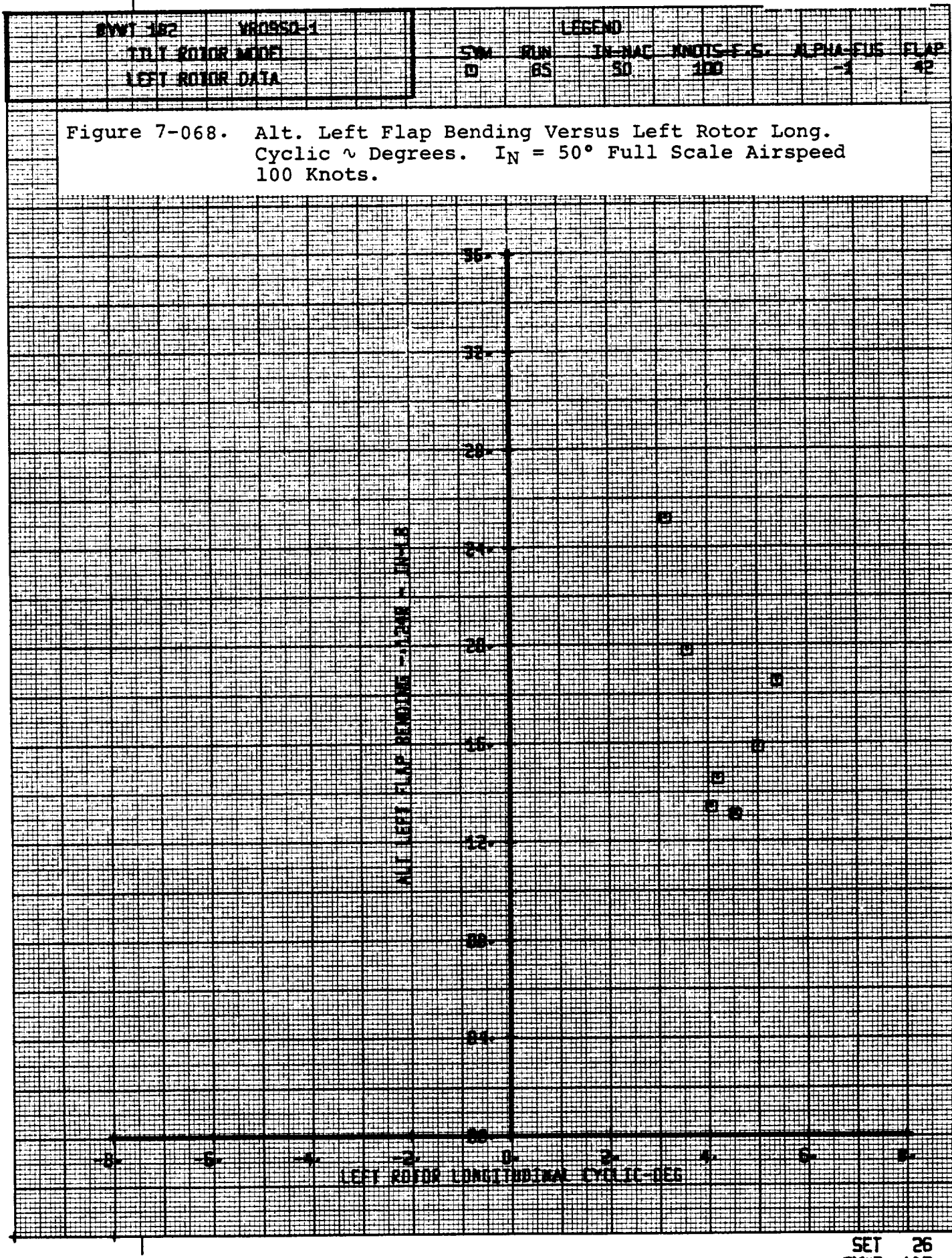


Figure 7-068. Alt. Left Flap Bending Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

26
182

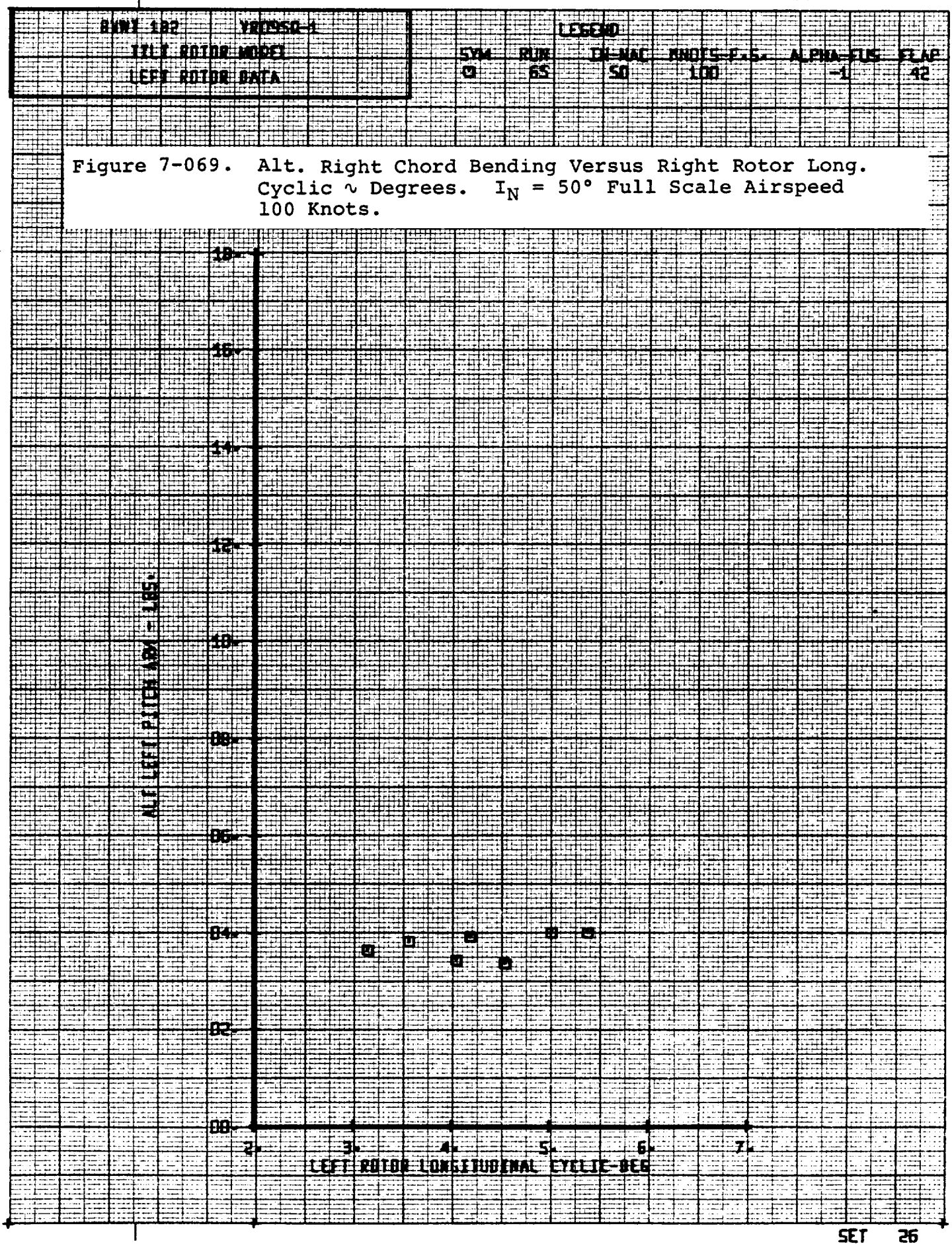


Figure 7-069. Alt. Right Chord Bending Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

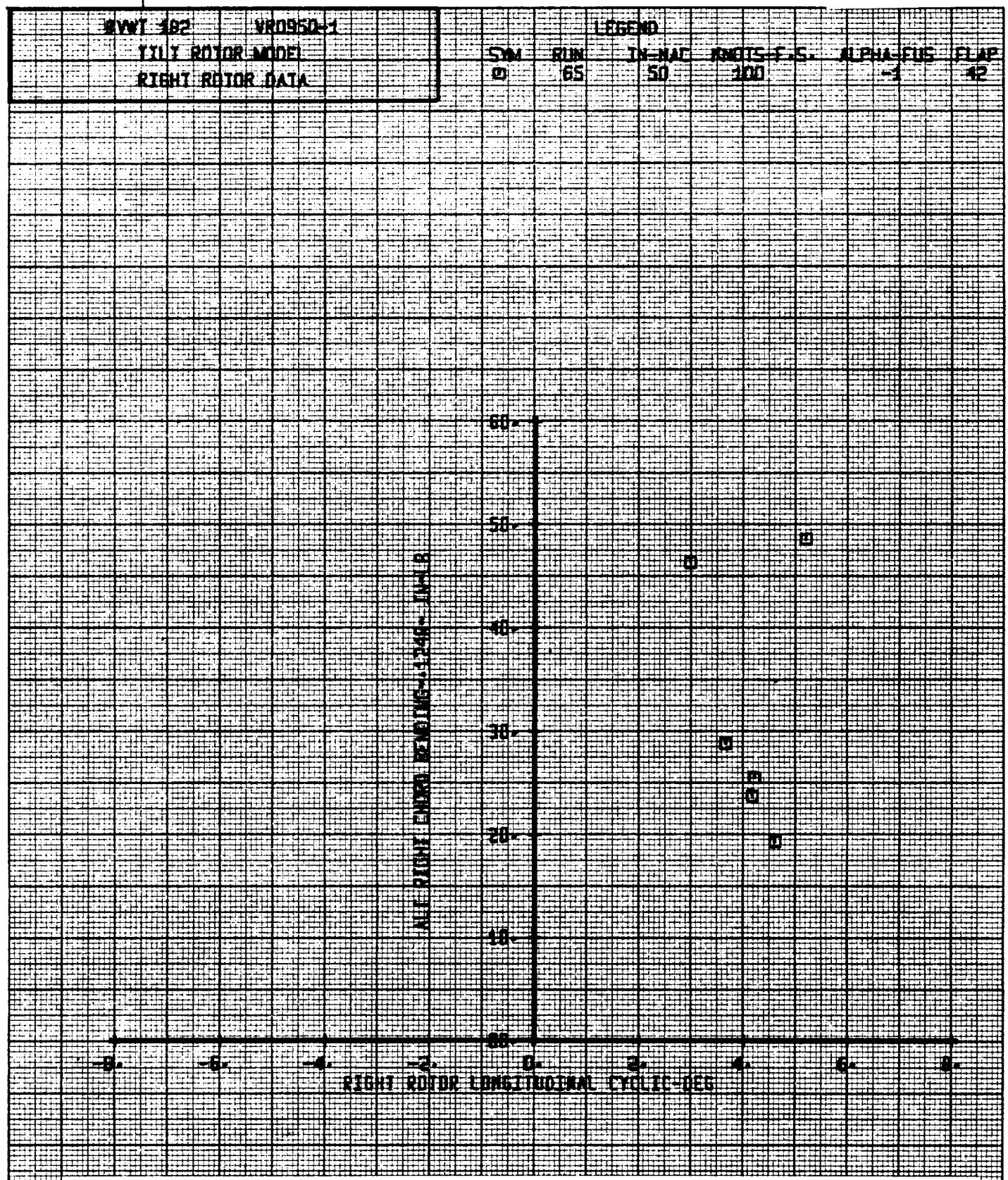


Figure 7-070. Alt. Right Chord Bending Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

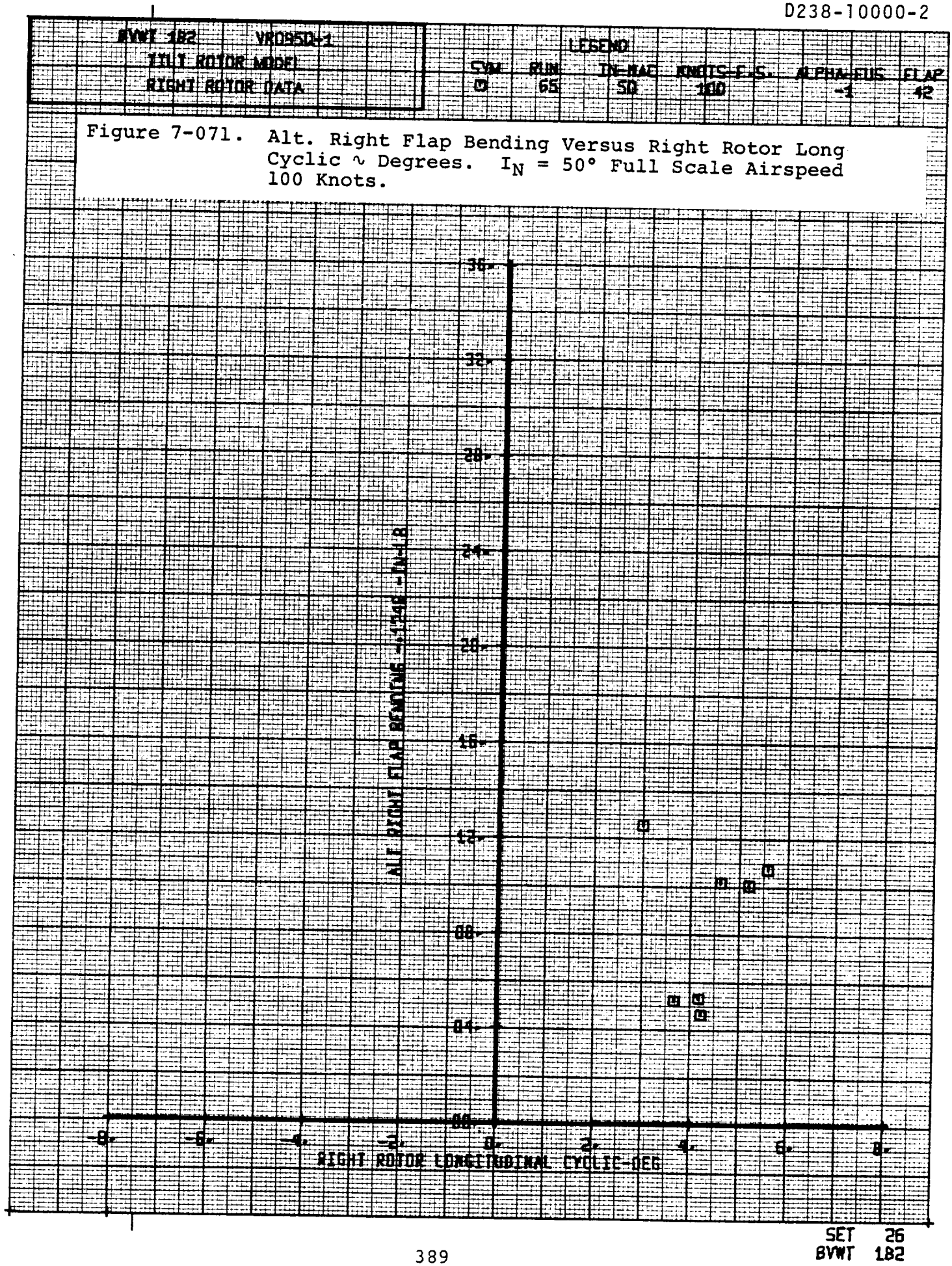


Figure 7-071. Alt. Right Flap Bending Versus Right Rotor Long Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

ET 26
182

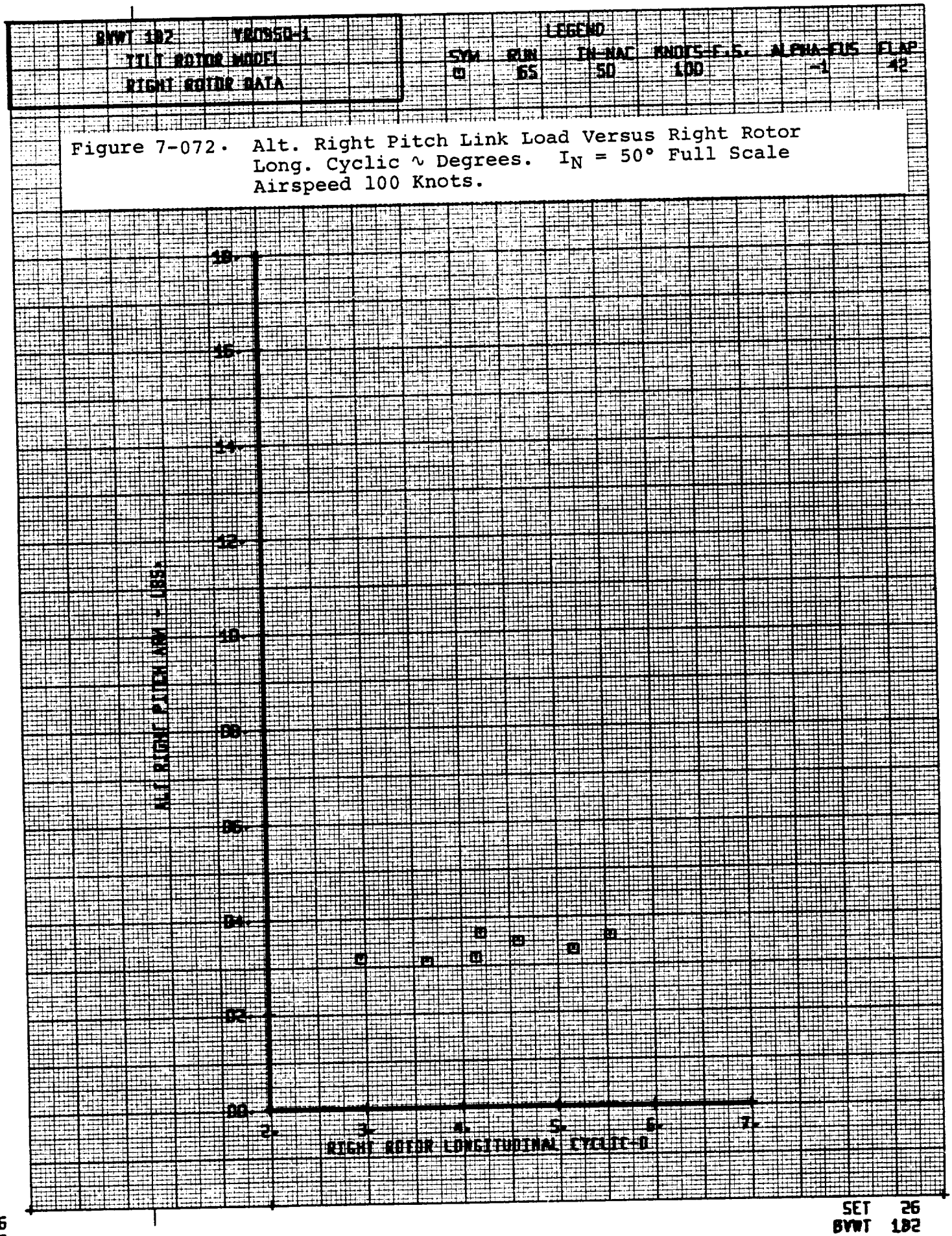


Figure 7-072. Alt. Right Pitch Link Load Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

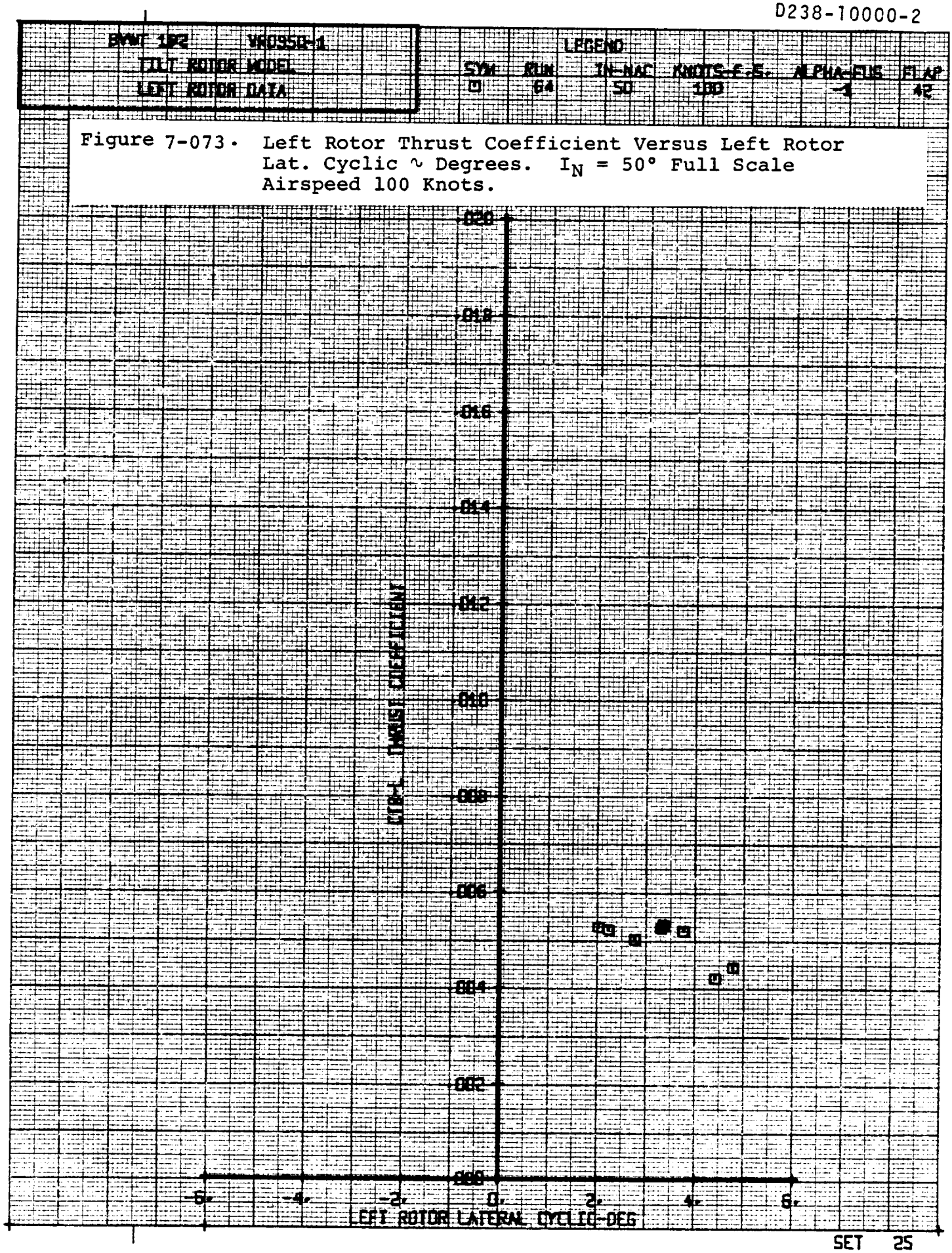


Figure 7-073. Left Rotor Thrust Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

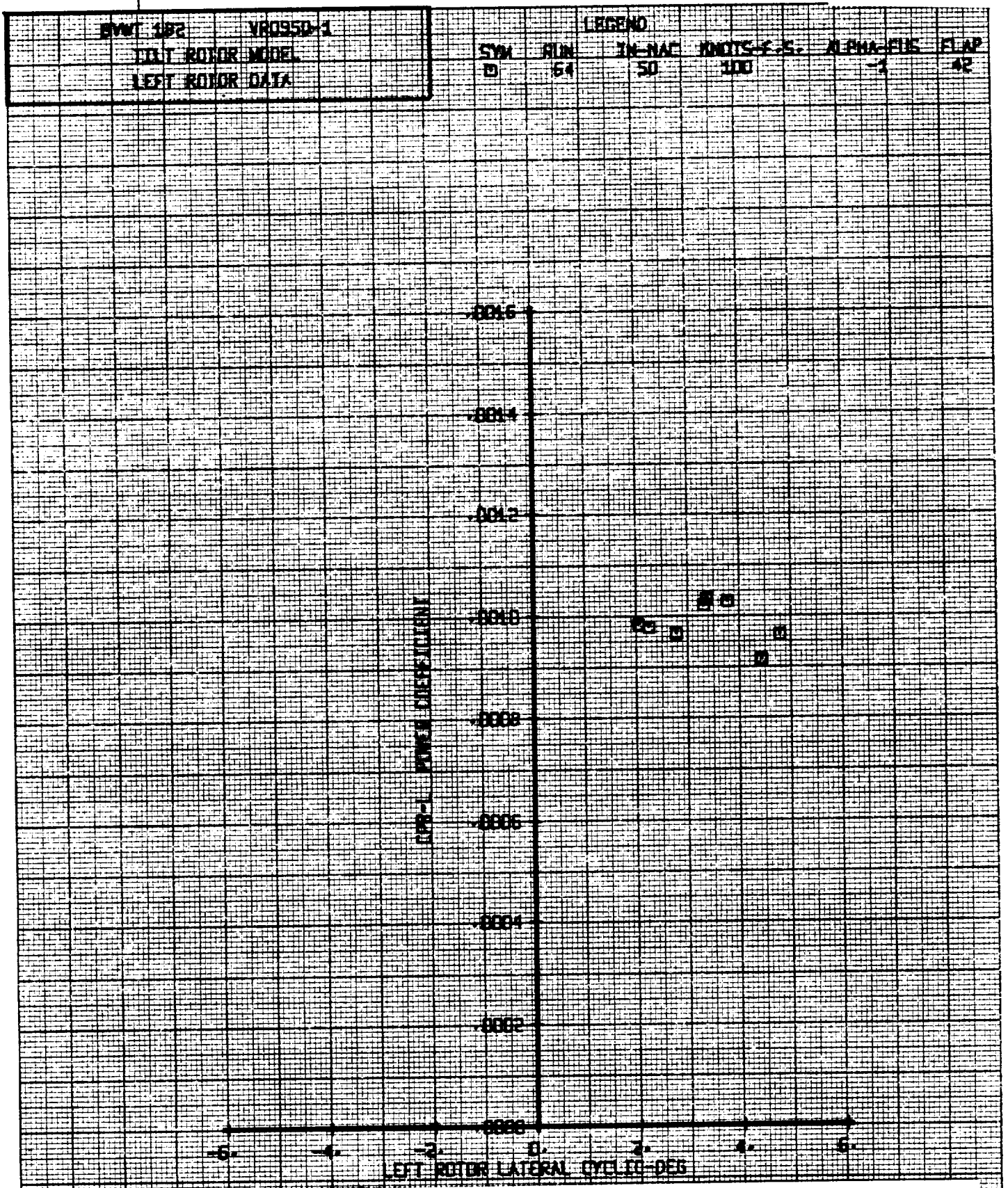


Figure 7-074. Left Rotor Power Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

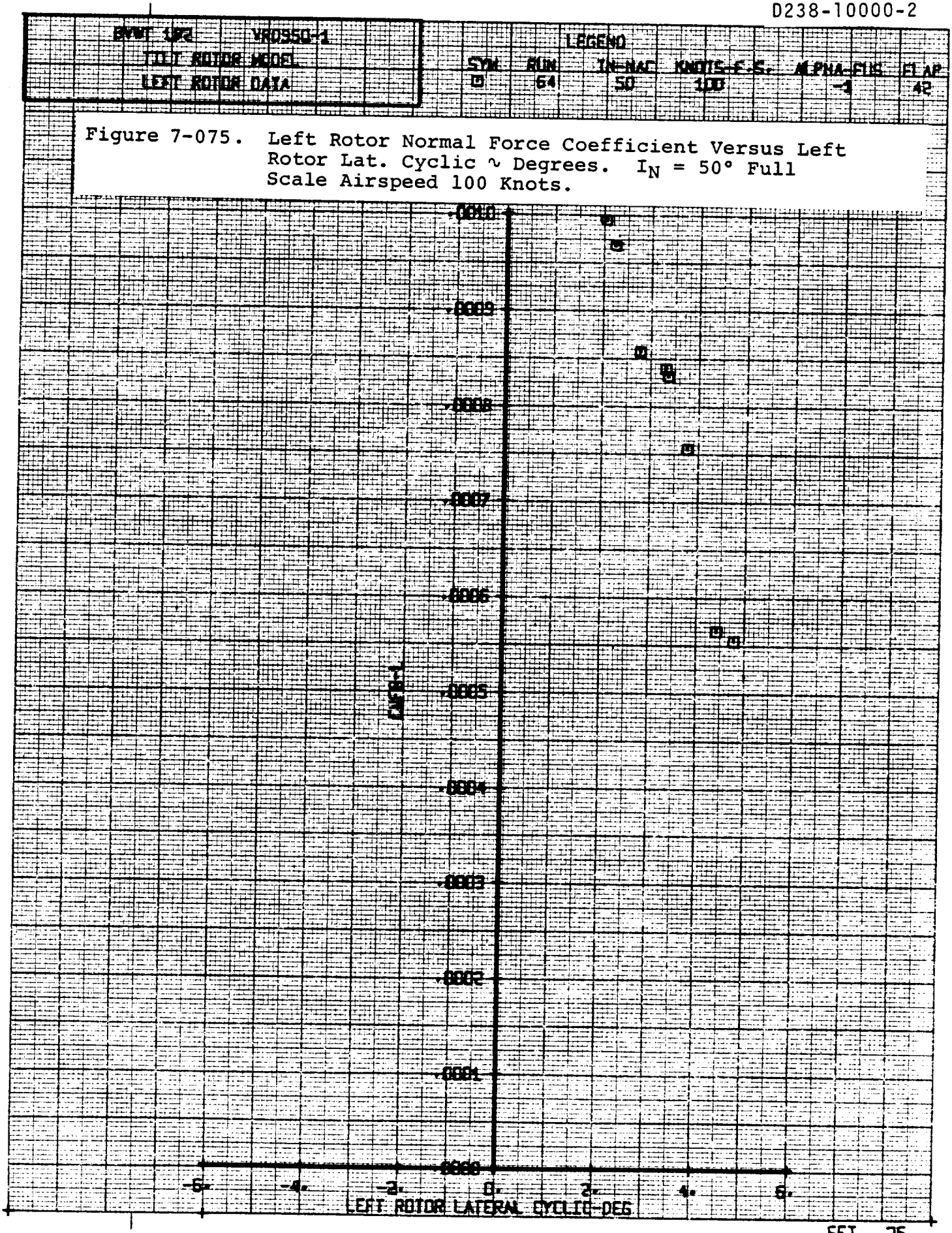


Figure 7-075. Left Rotor Normal Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

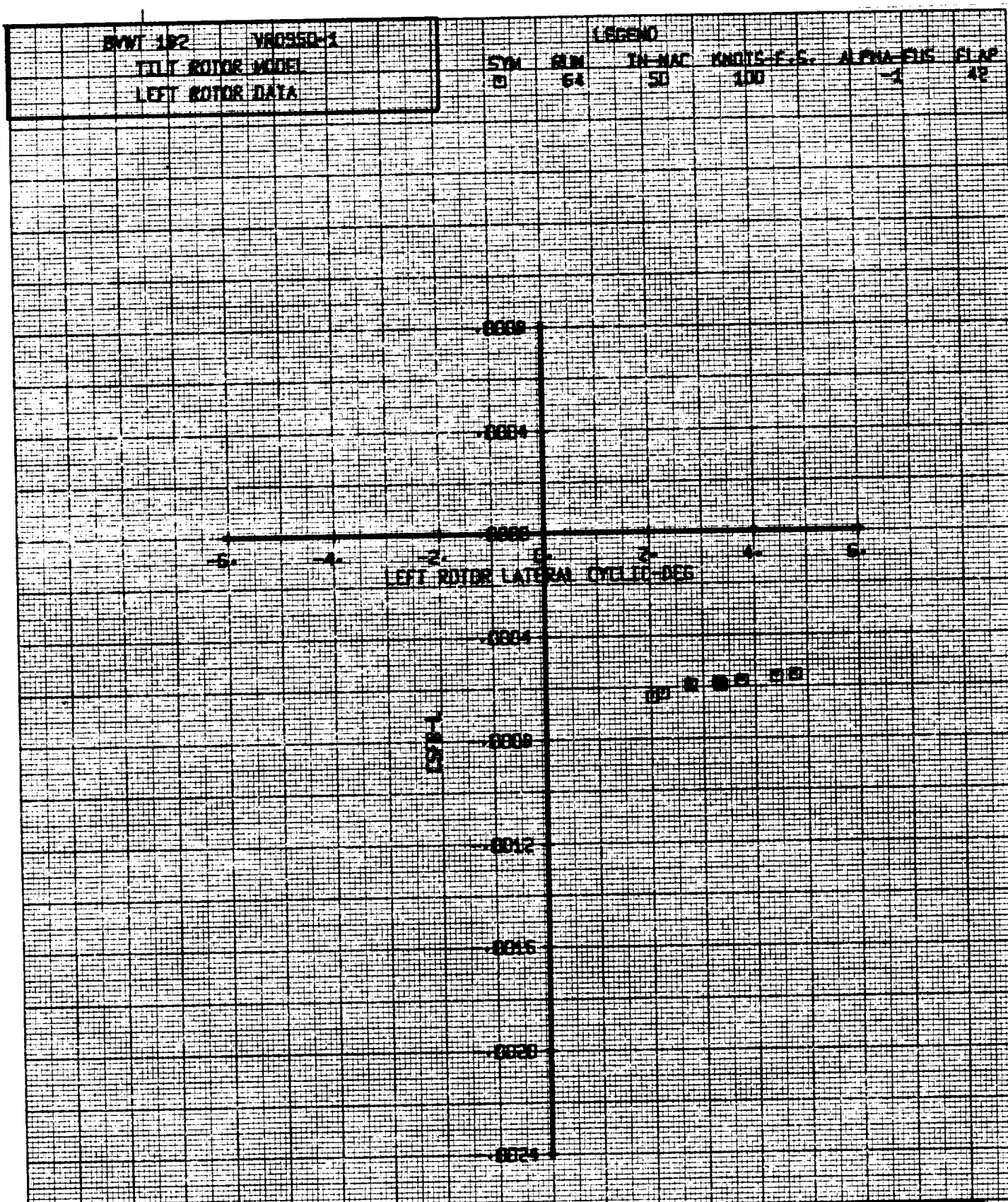


Figure 7-076. Left Rotor Side Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed L00 Knots.

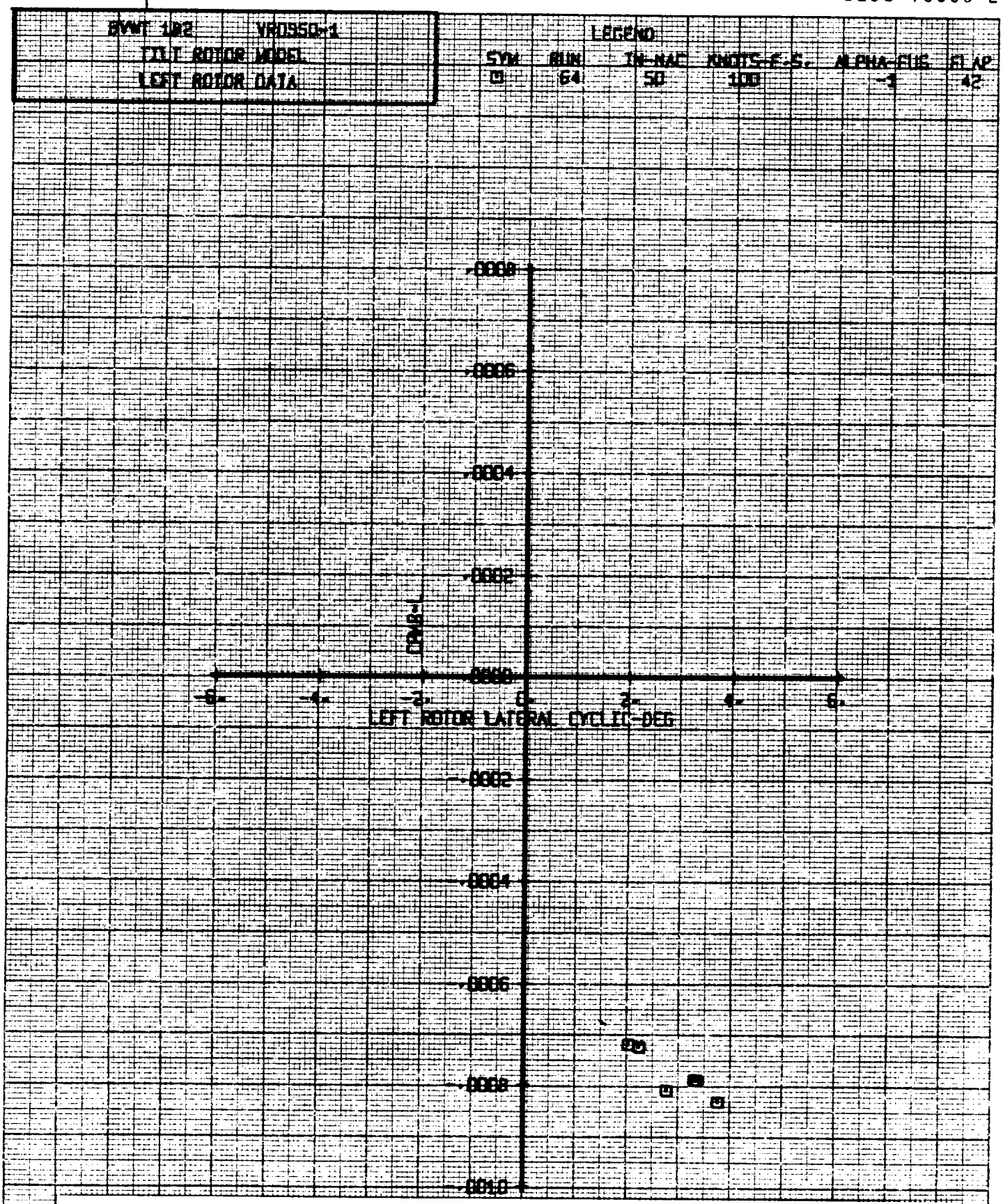


Figure 7-077. Left Rotor Pitching Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 25
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SET 25
BVWT 182

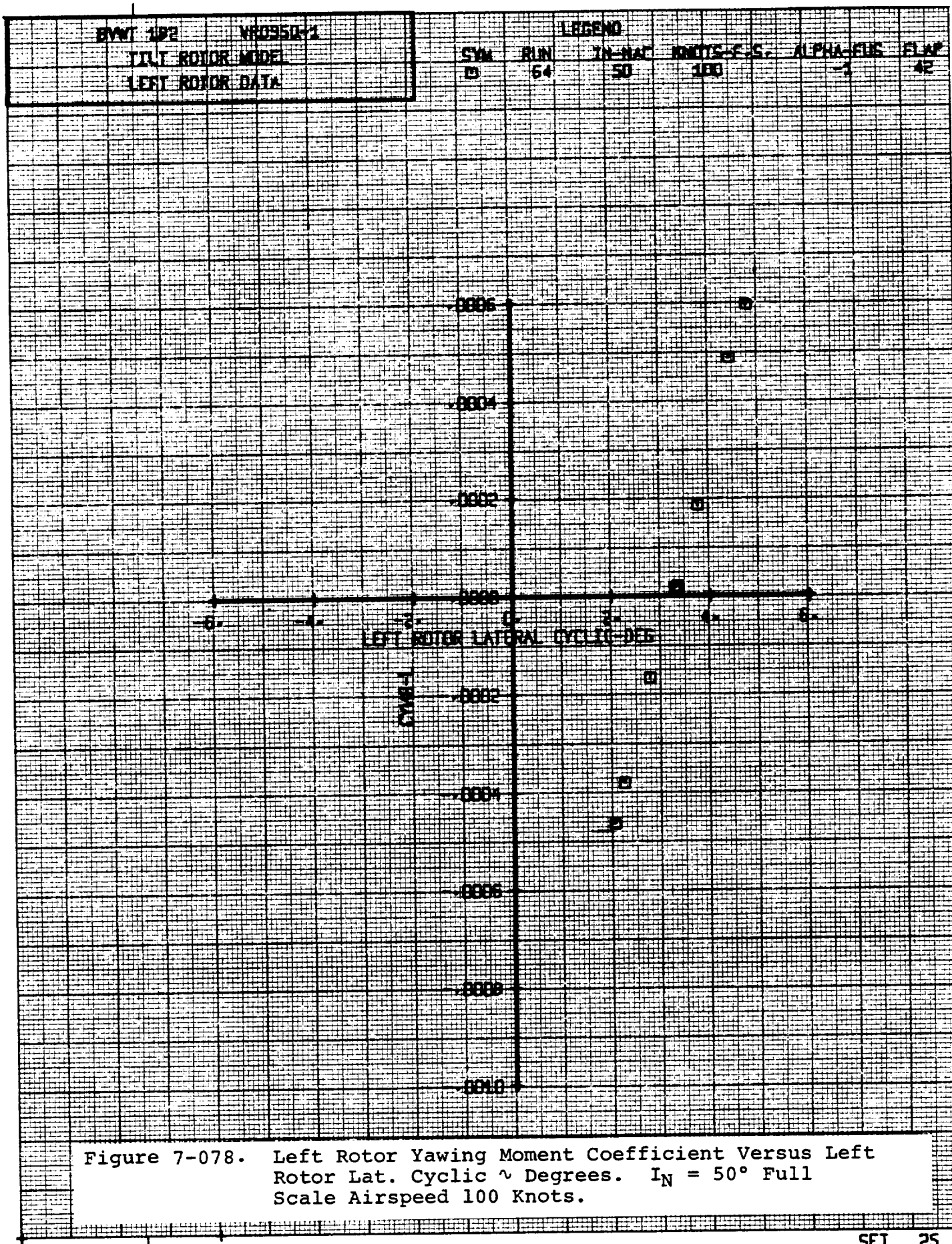


Figure 7-078. Left Rotor Yawing Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

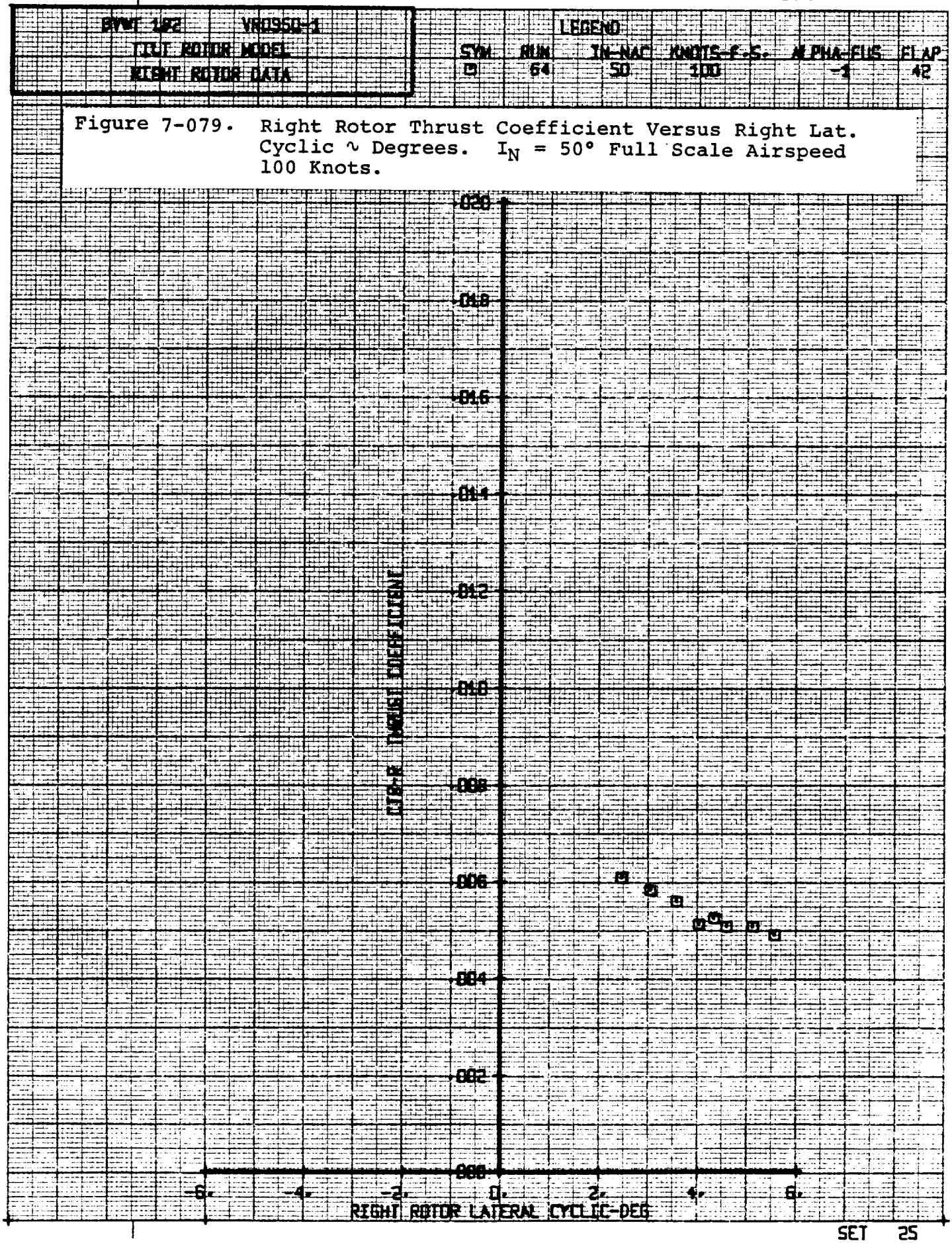


Figure 7-079. Right Rotor Thrust Coefficient Versus Right Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

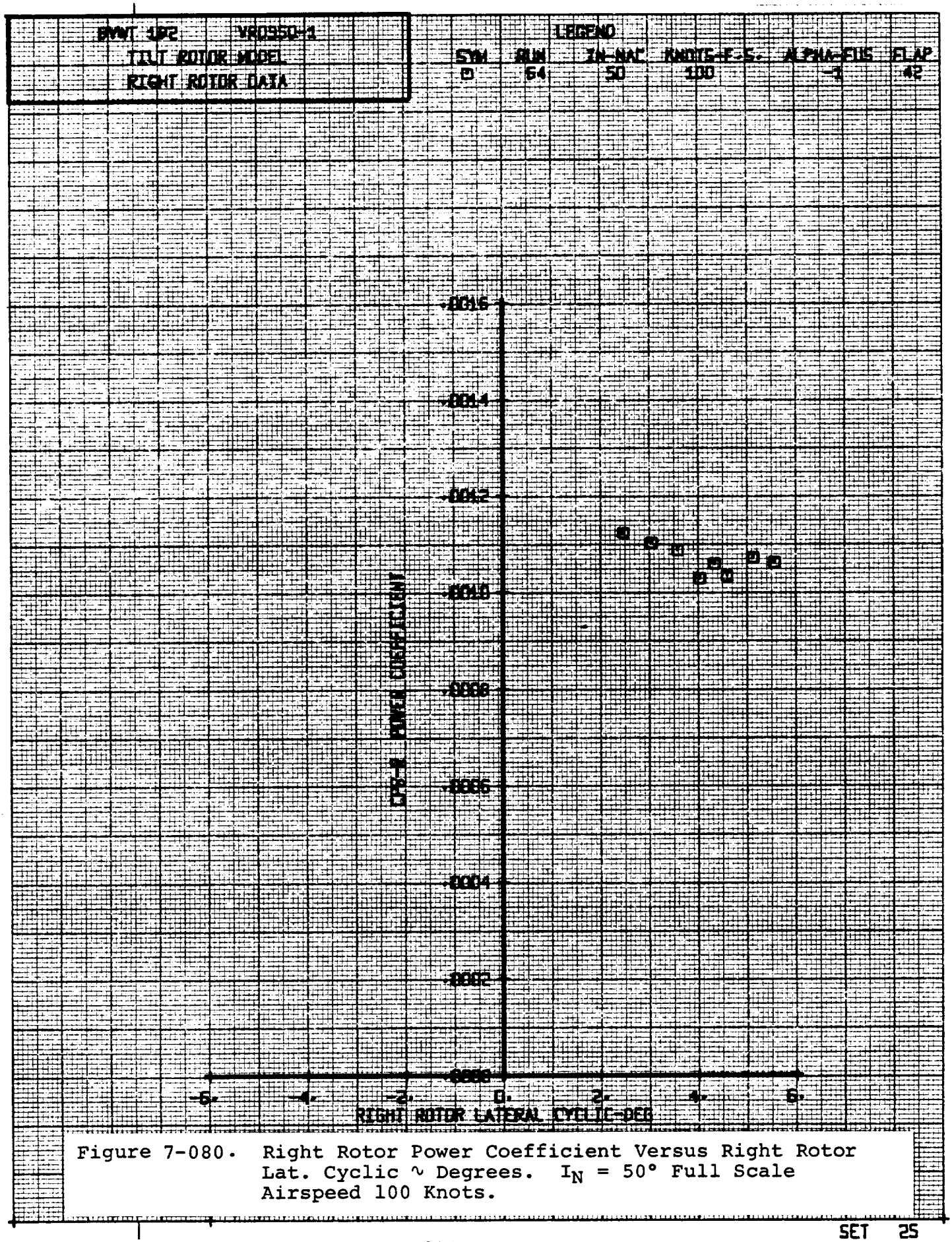


Figure 7-080. Right Rotor Power Coefficient Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

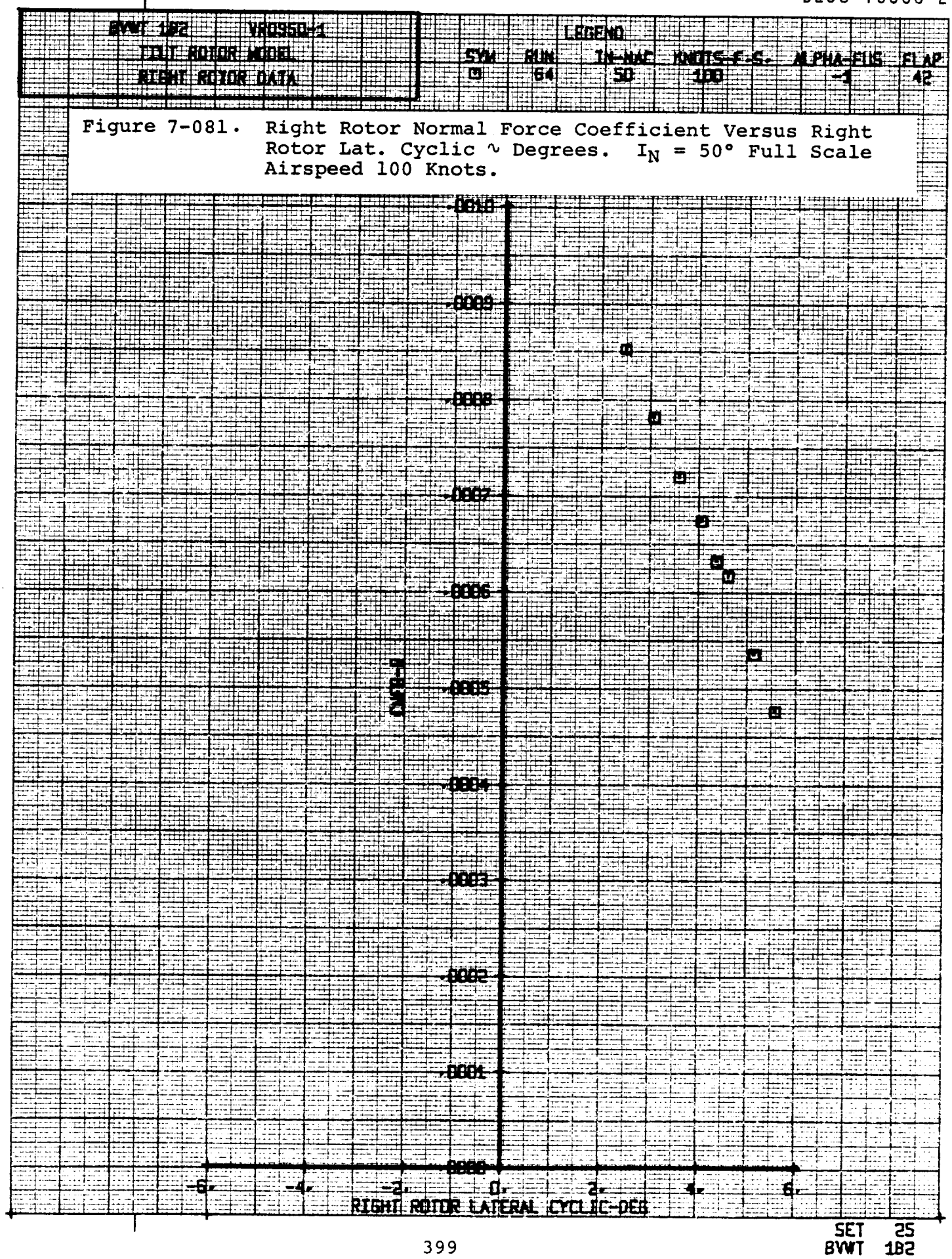


Figure 7-081. Right Rotor Normal Force Coefficient Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

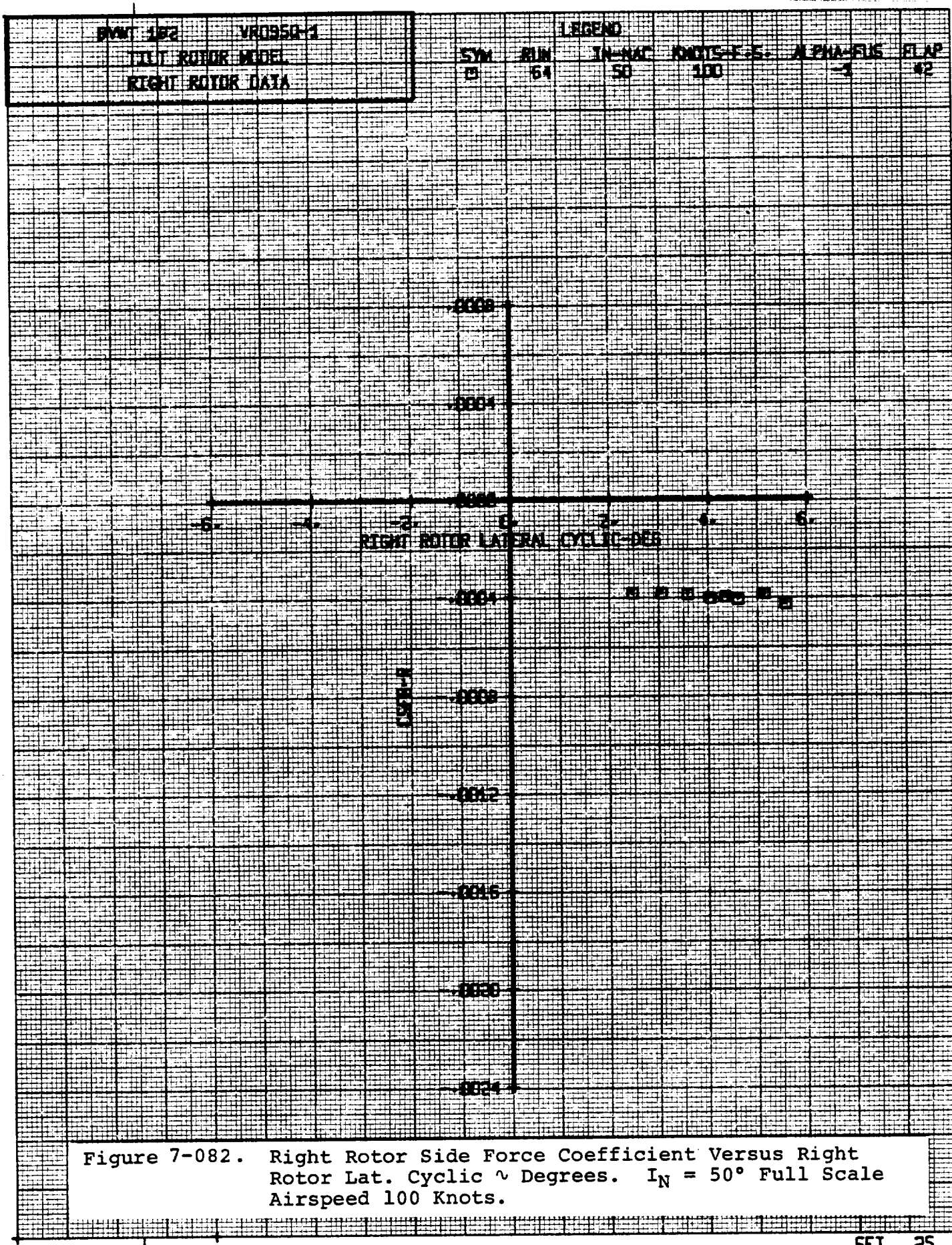


Figure 7-082. Right Rotor Side Force Coefficient Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

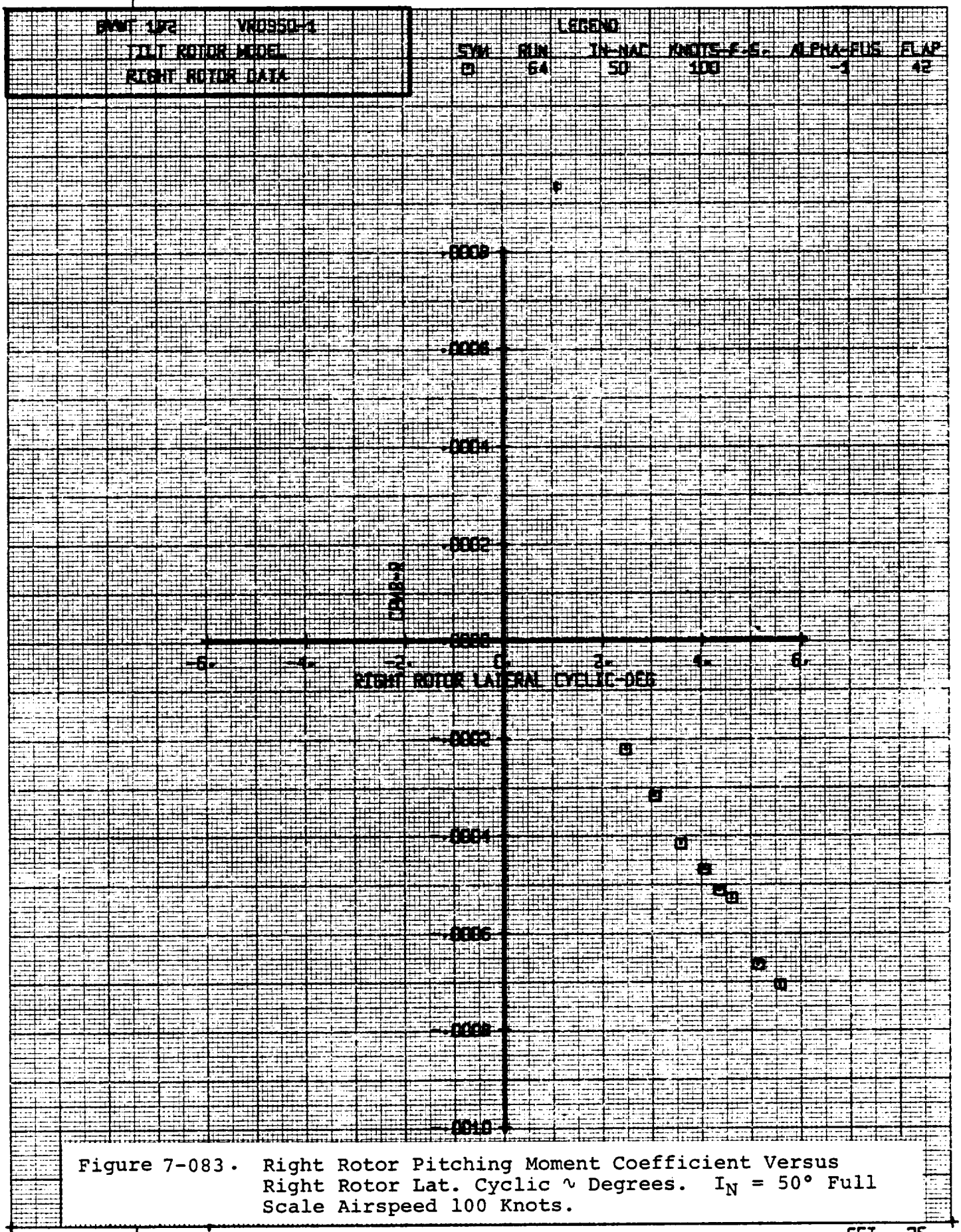


Figure 7-083. Right Rotor Pitching Moment Coefficient Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

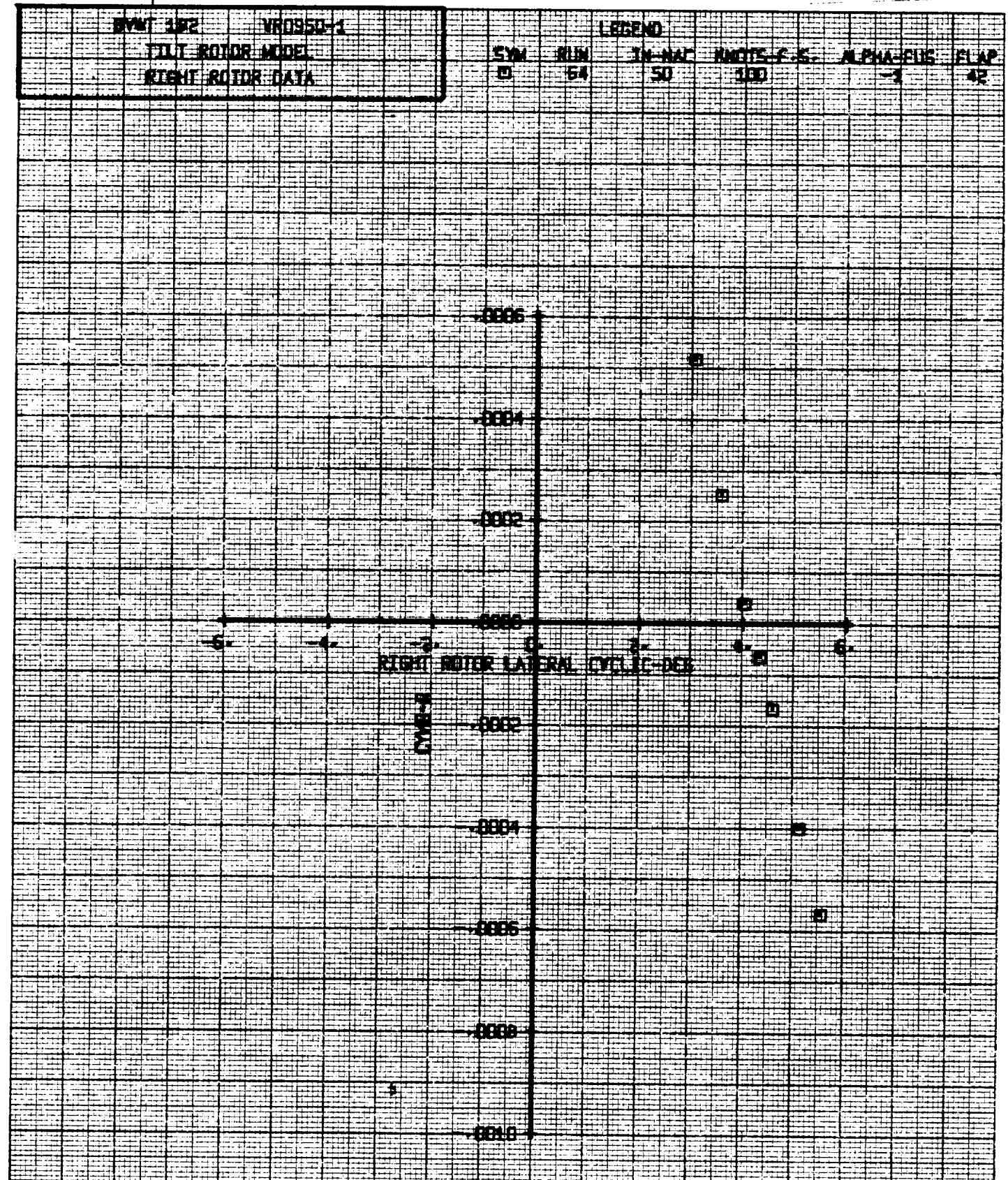


Figure 7-084. Right Rotor Yawing Moment Coefficient Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

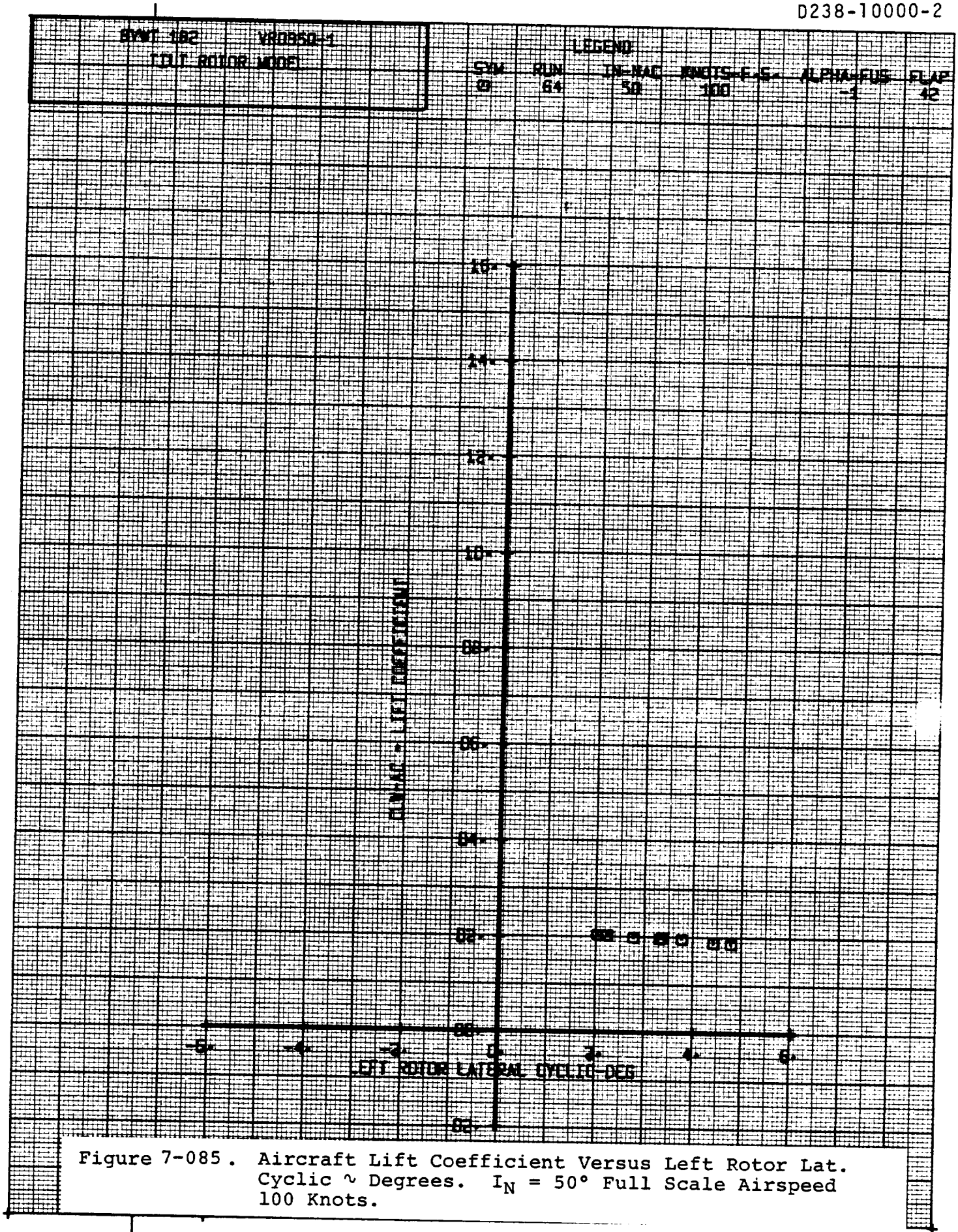


Figure 7-085. Aircraft Lift Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

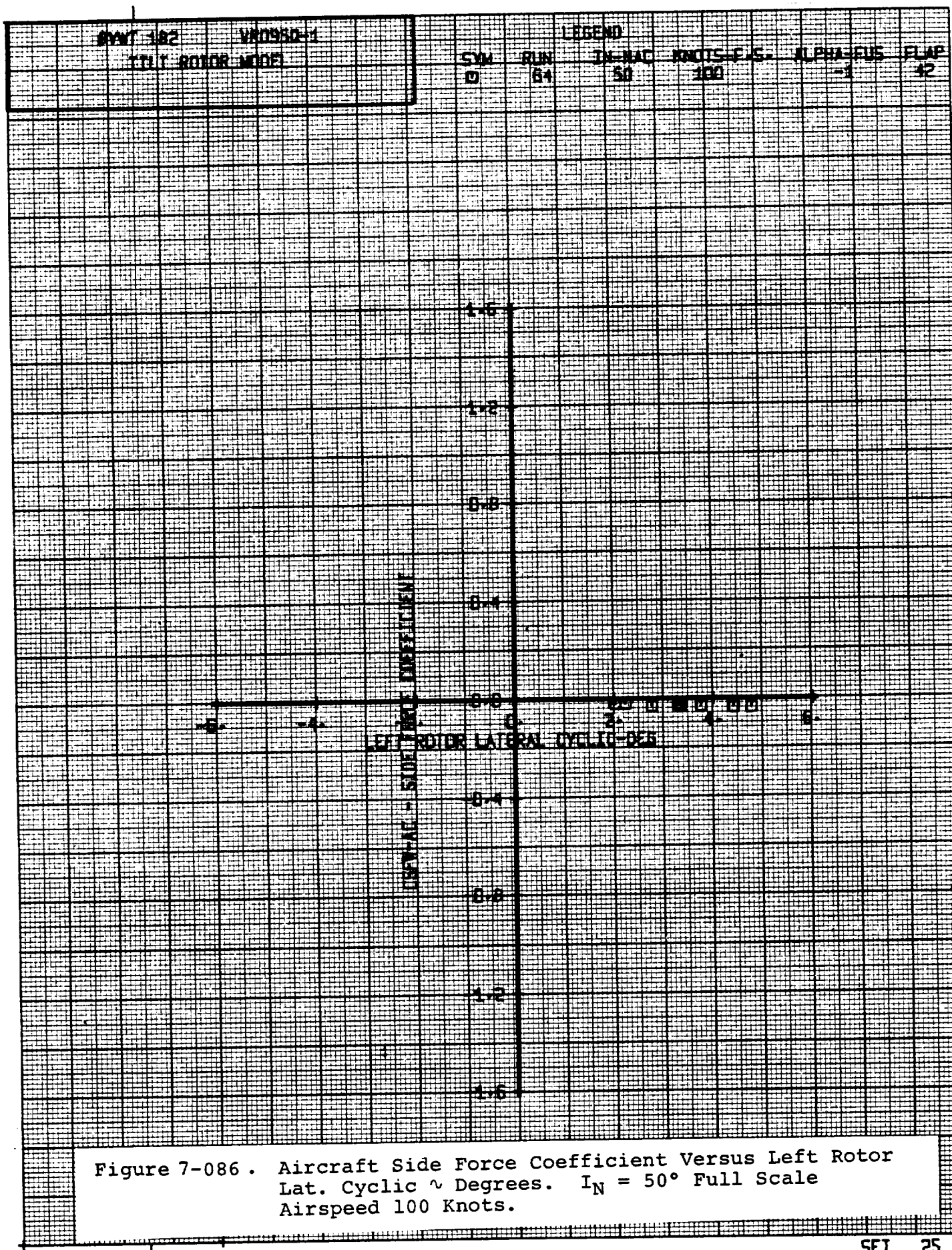


Figure 7-086 . Aircraft Side Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

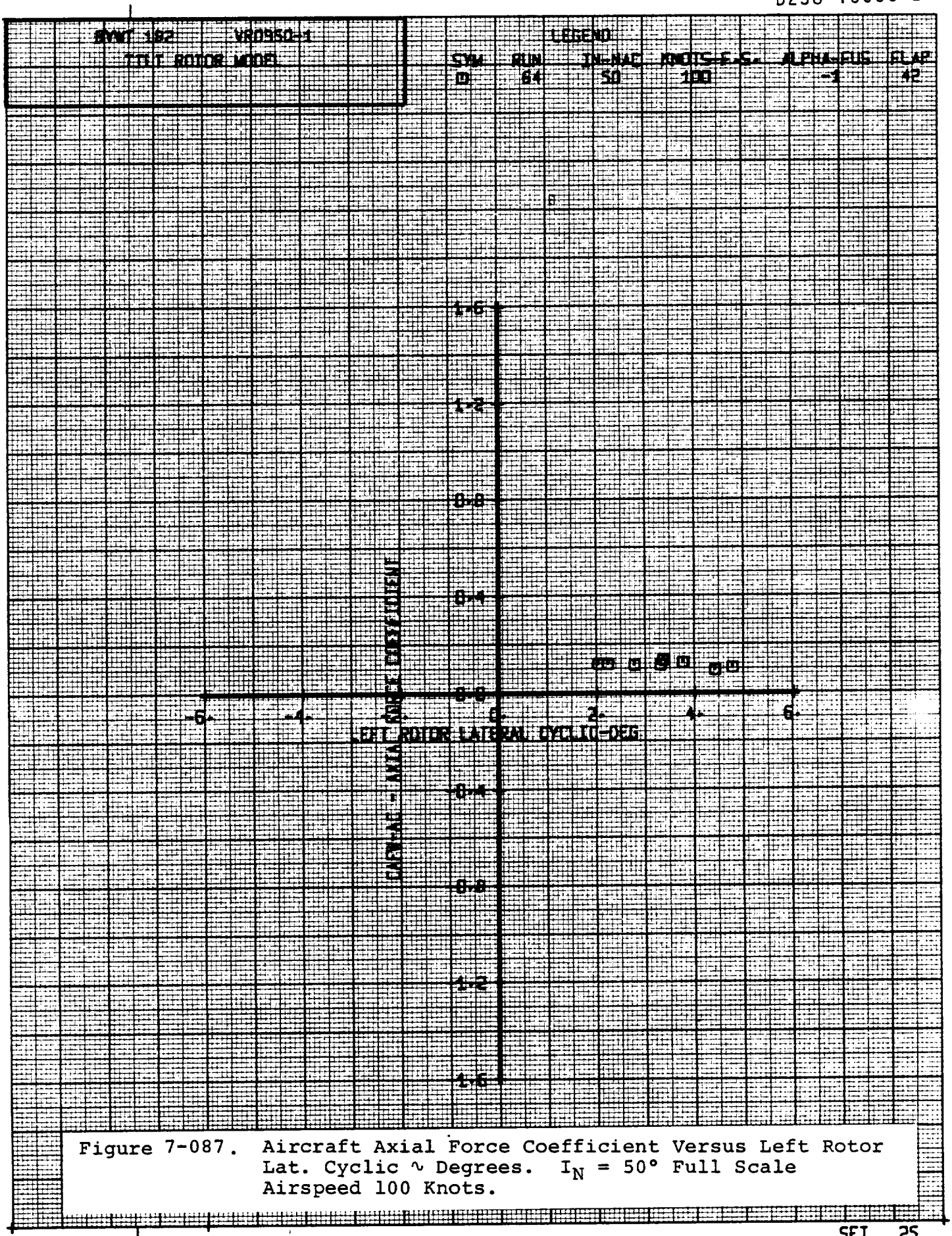


Figure 7-087. Aircraft Axial Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

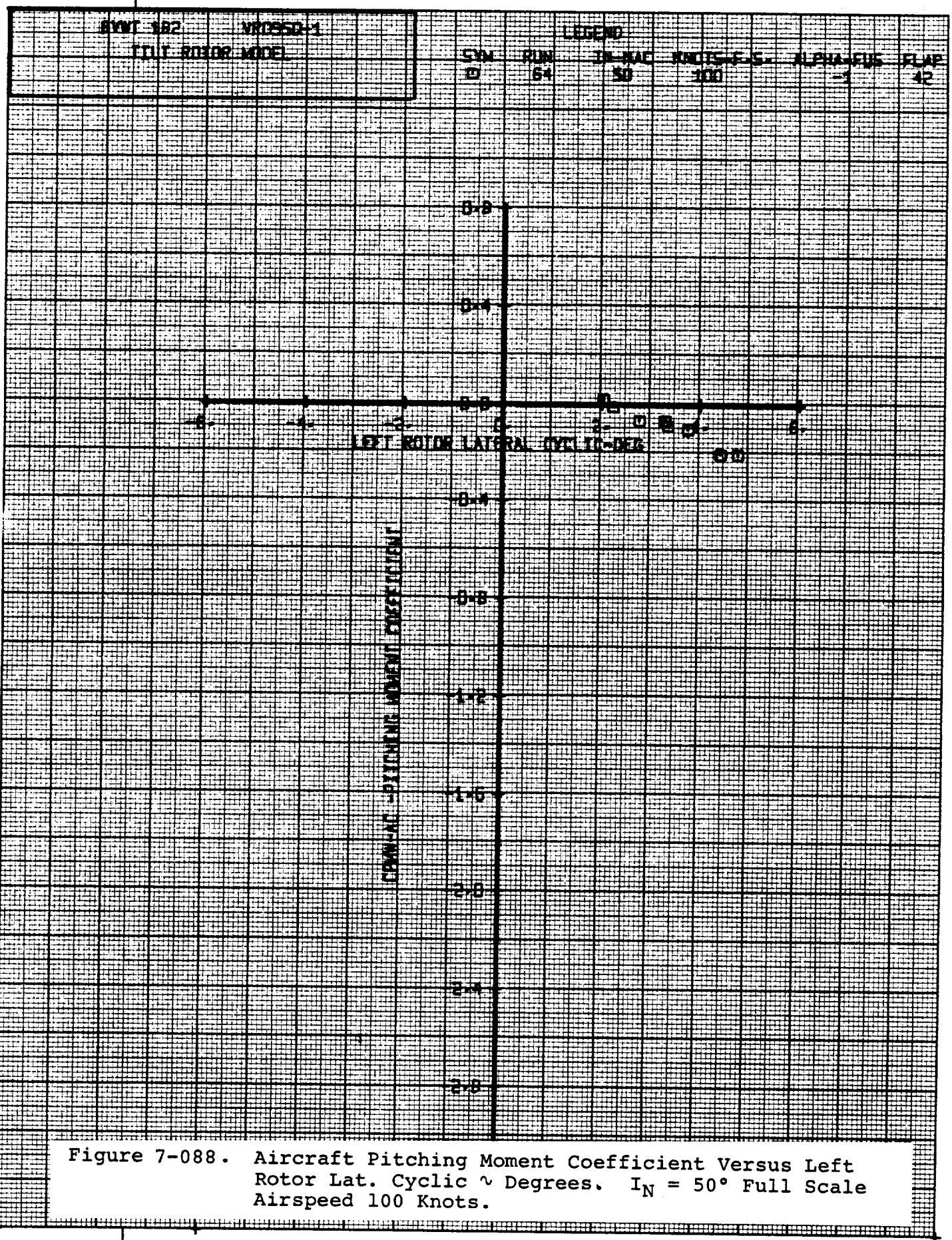


Figure 7-088. Aircraft Pitching Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

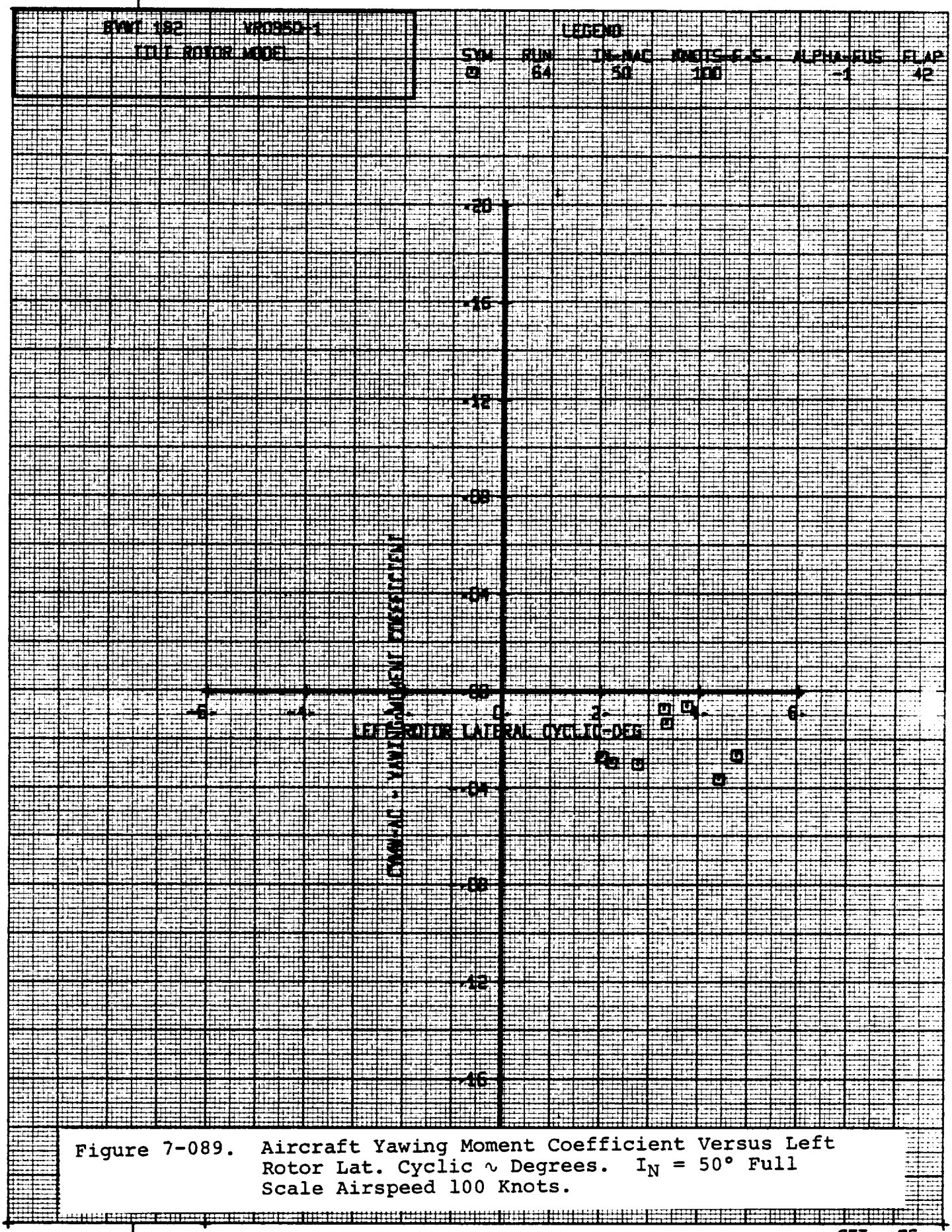


Figure 7-089. Aircraft Yawing Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

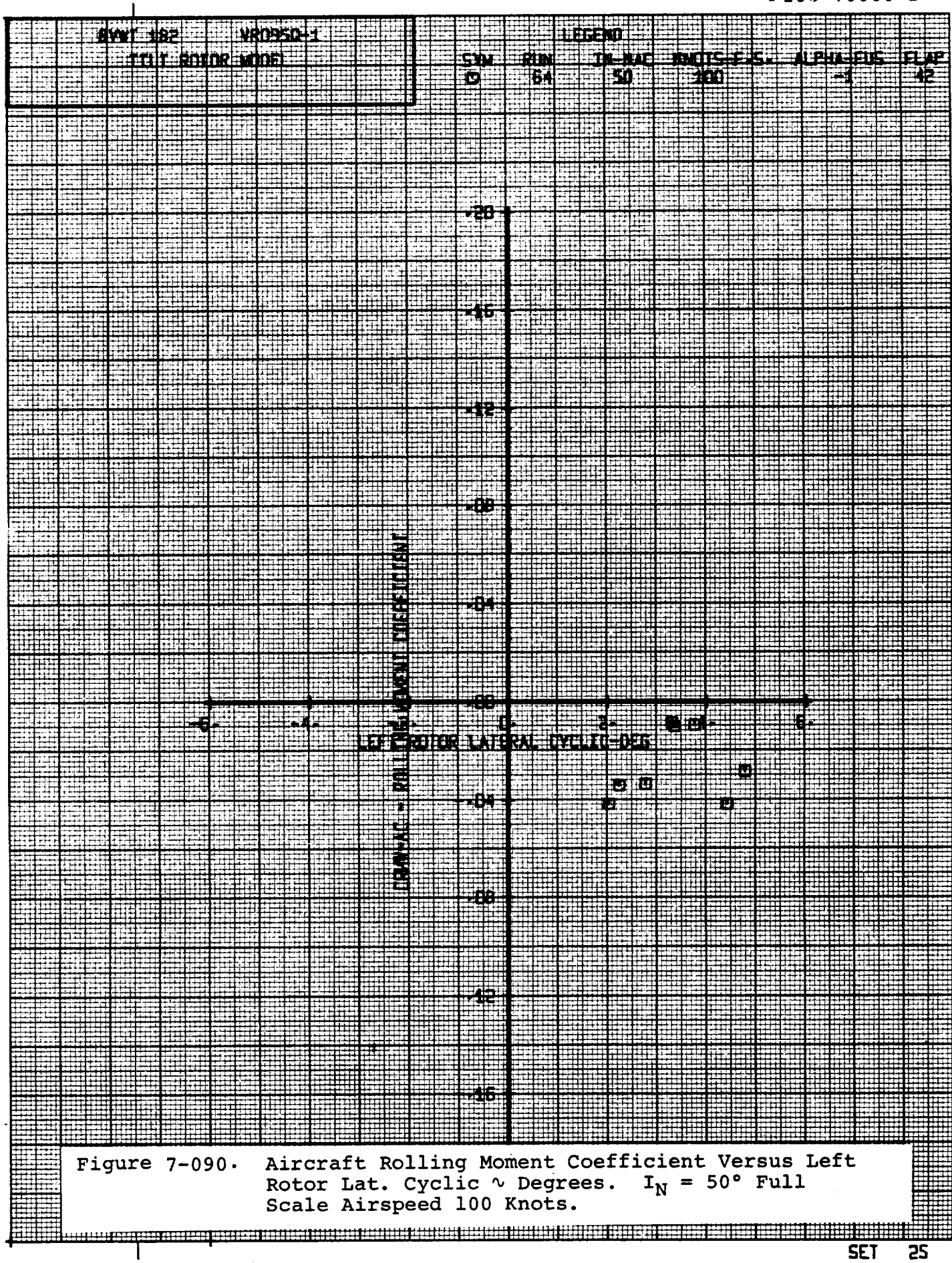


Figure 7-090. Aircraft Rolling Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

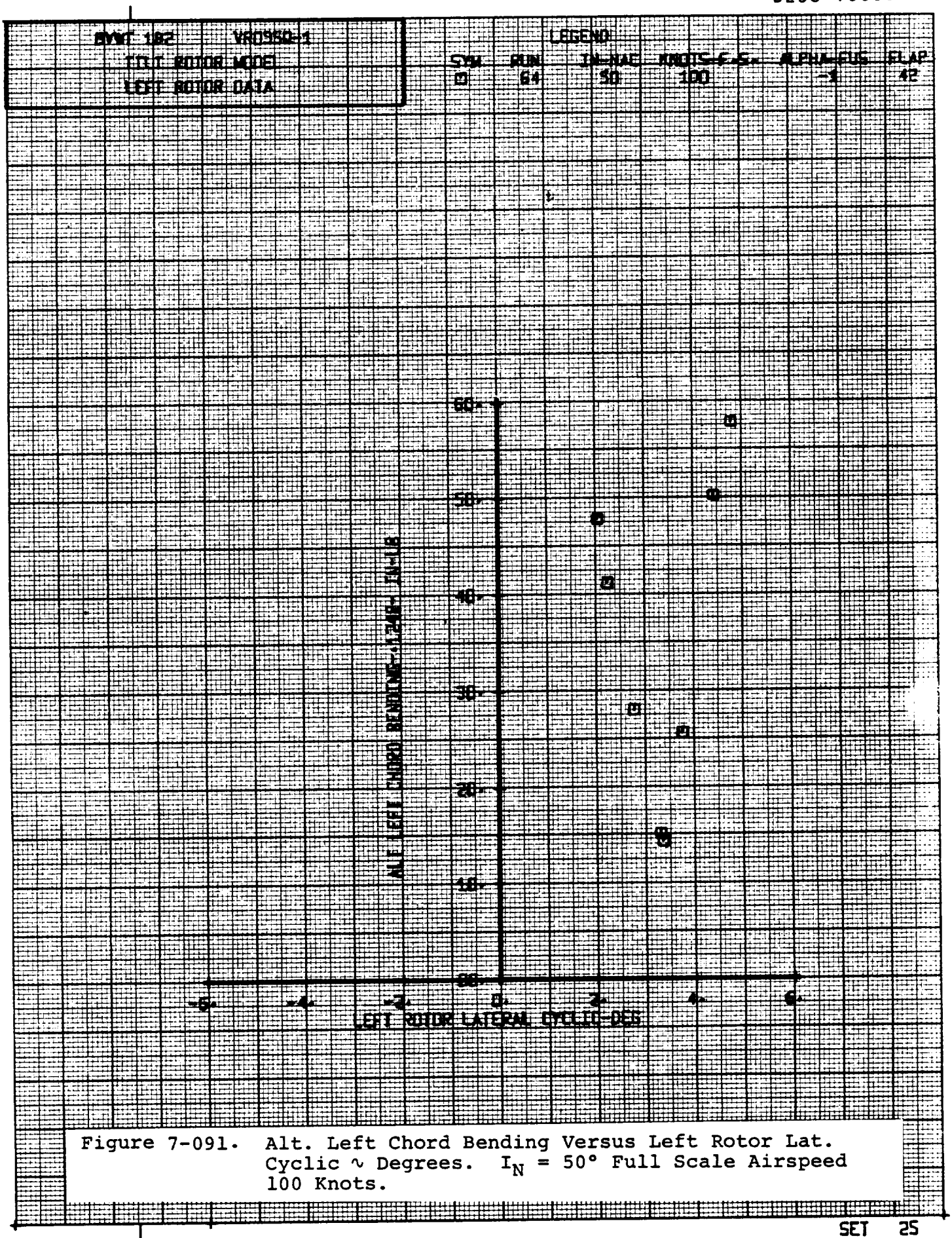


Figure 7-091. Alt. Left Chord Bending Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 25
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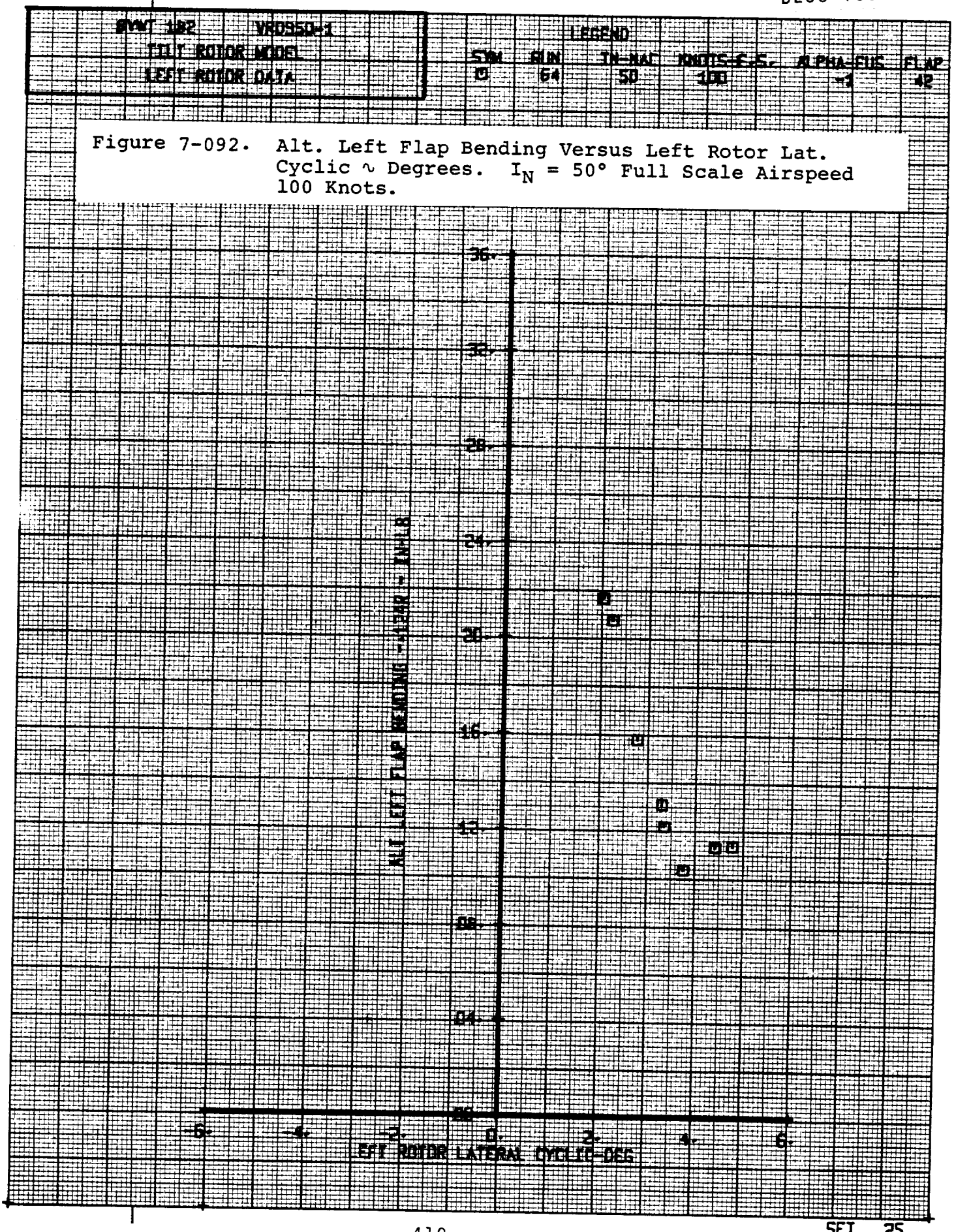


Figure 7-092. Alt. Left Flap Bending Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

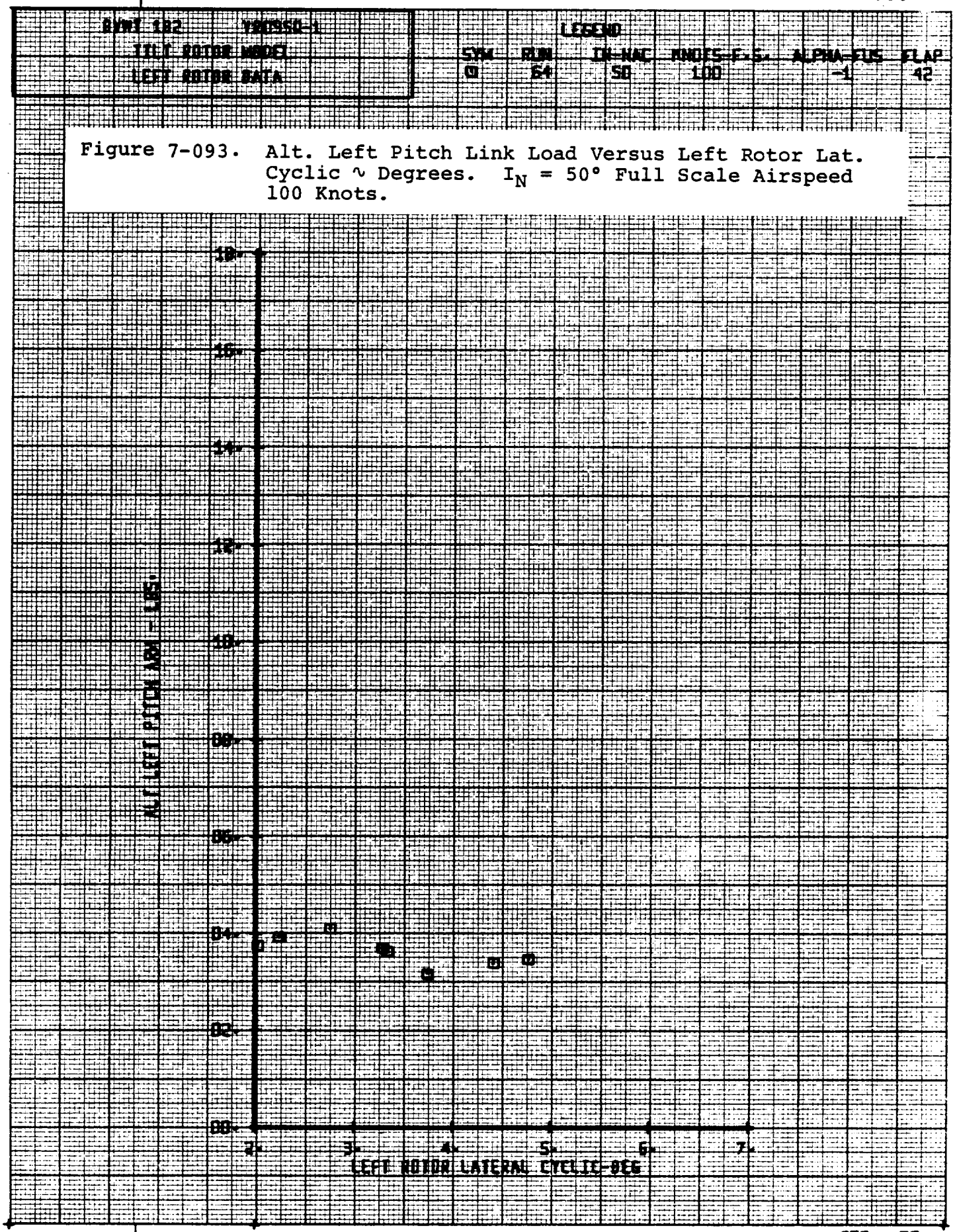


Figure 7-093. Alt. Left Pitch Link Load Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

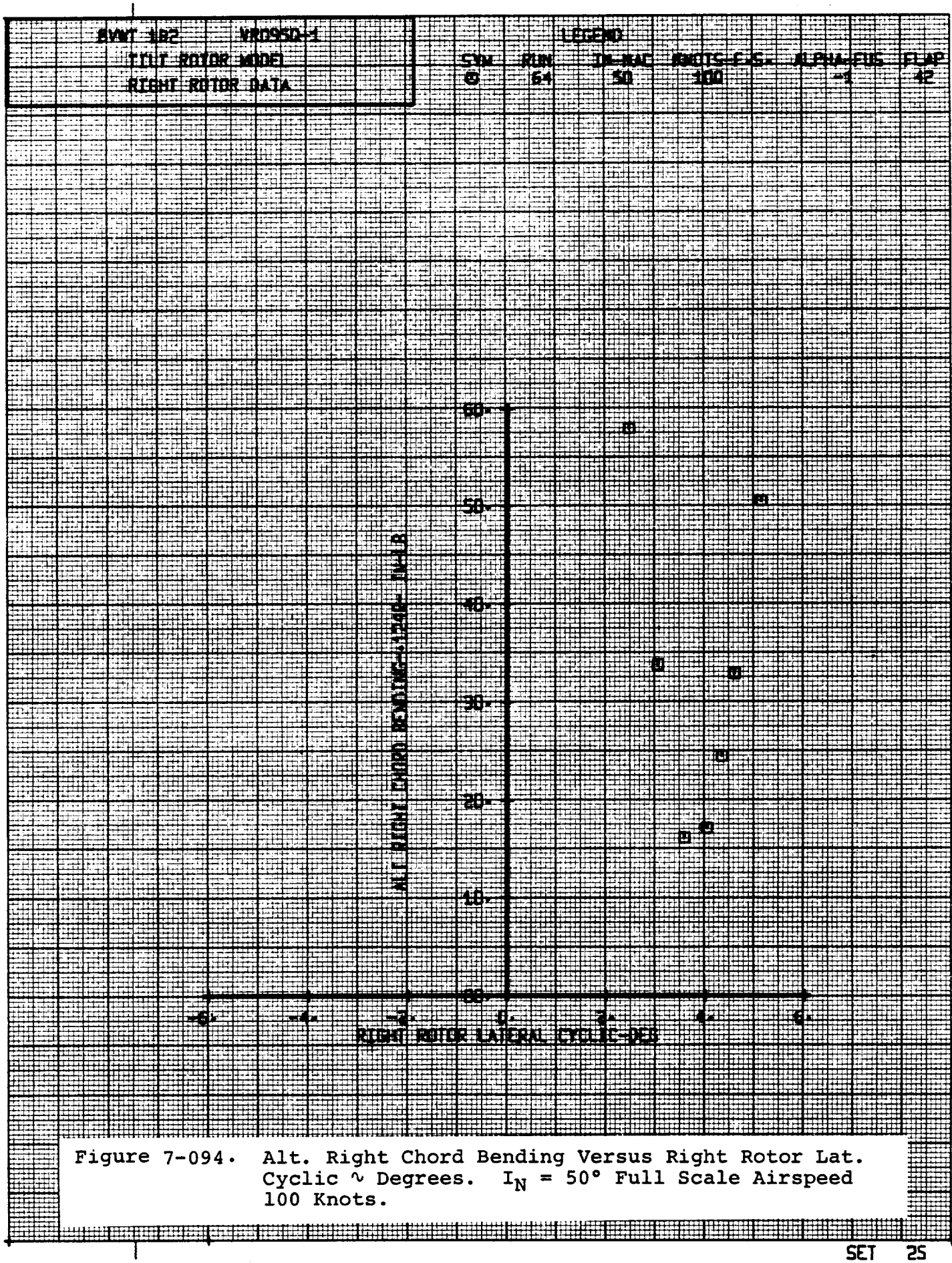


Figure 7-094. Alt. Right Chord Bending Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

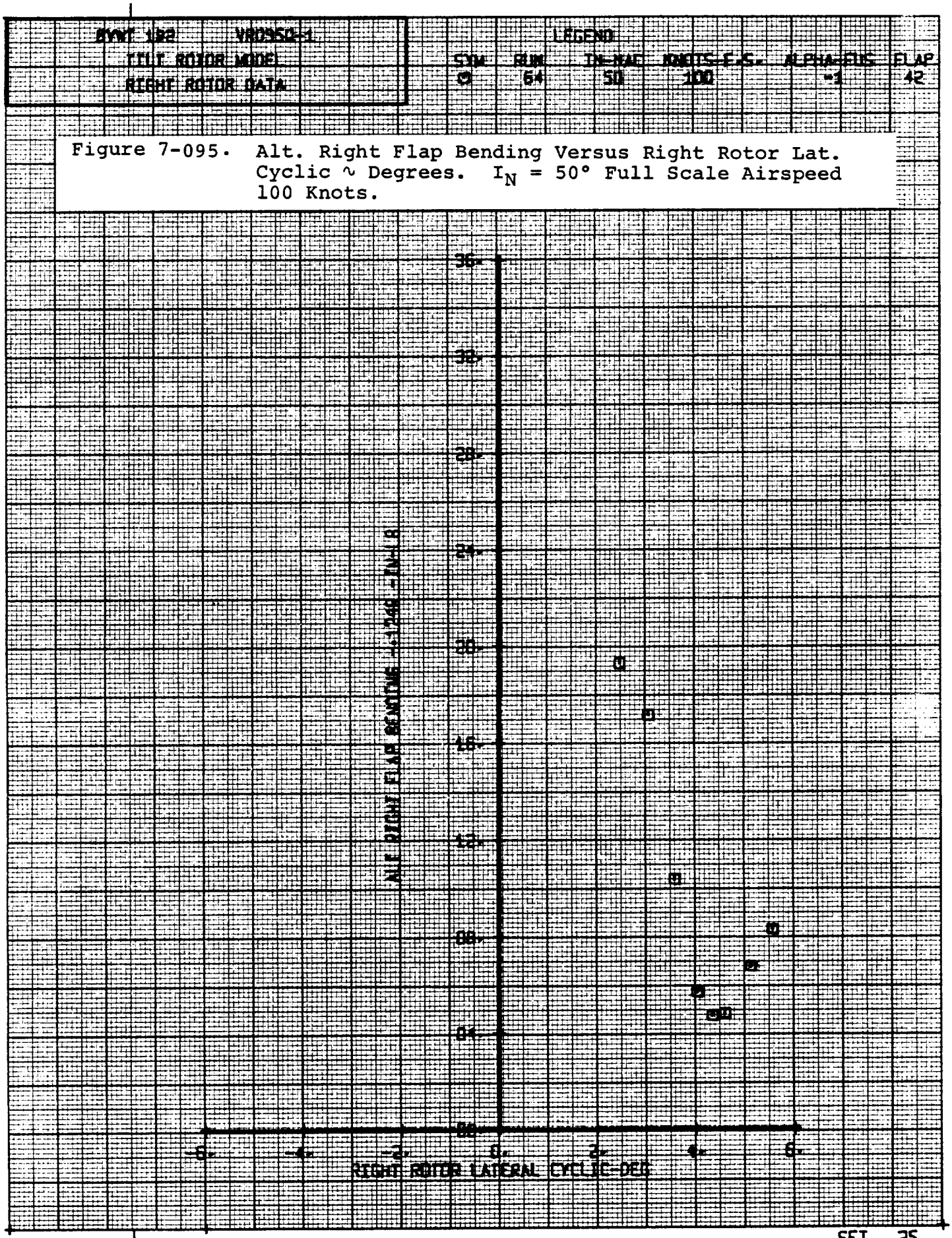


Figure 7-095. Alt. Right Flap Bending Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

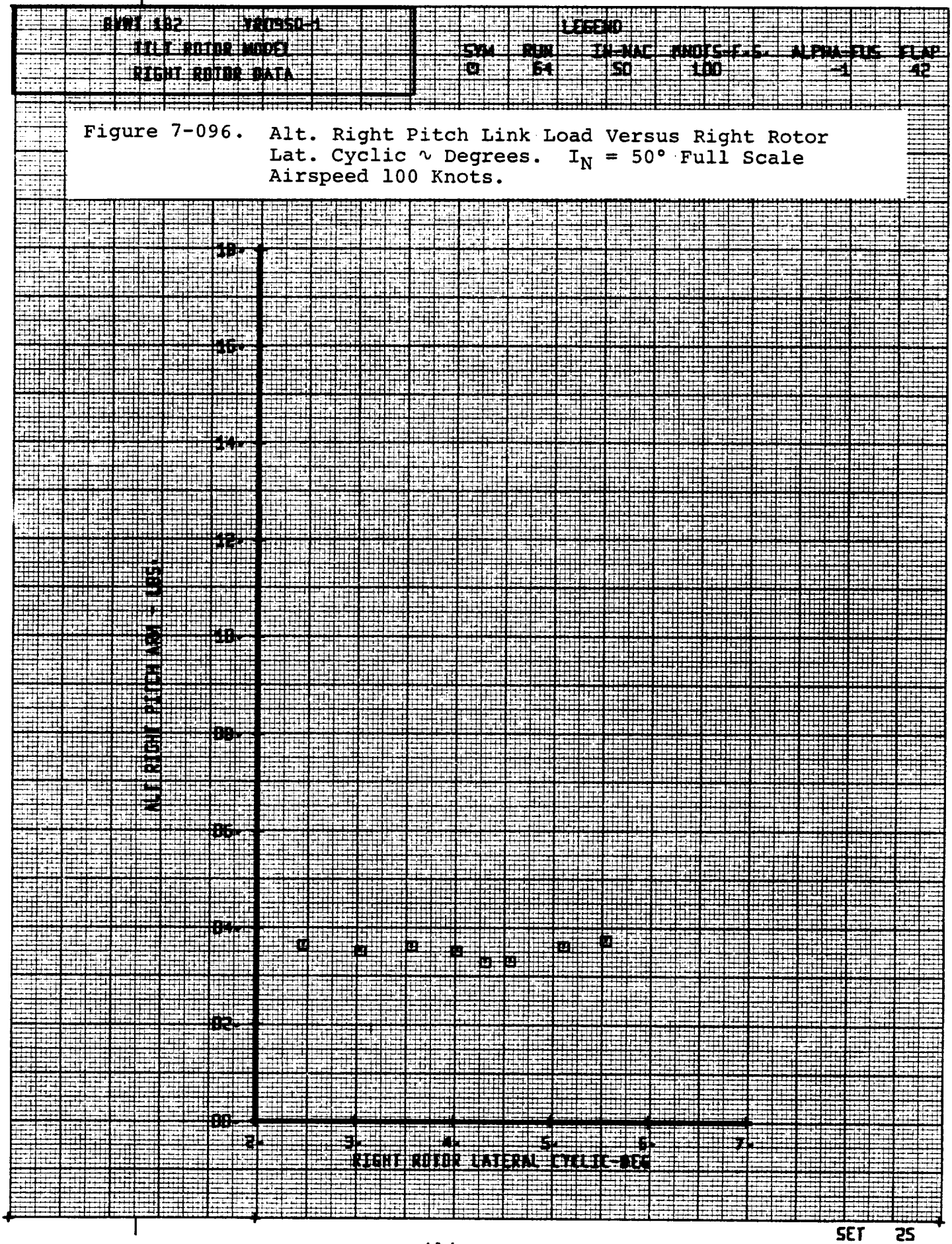


Figure 7-096. Alt. Right Pitch Link Load Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

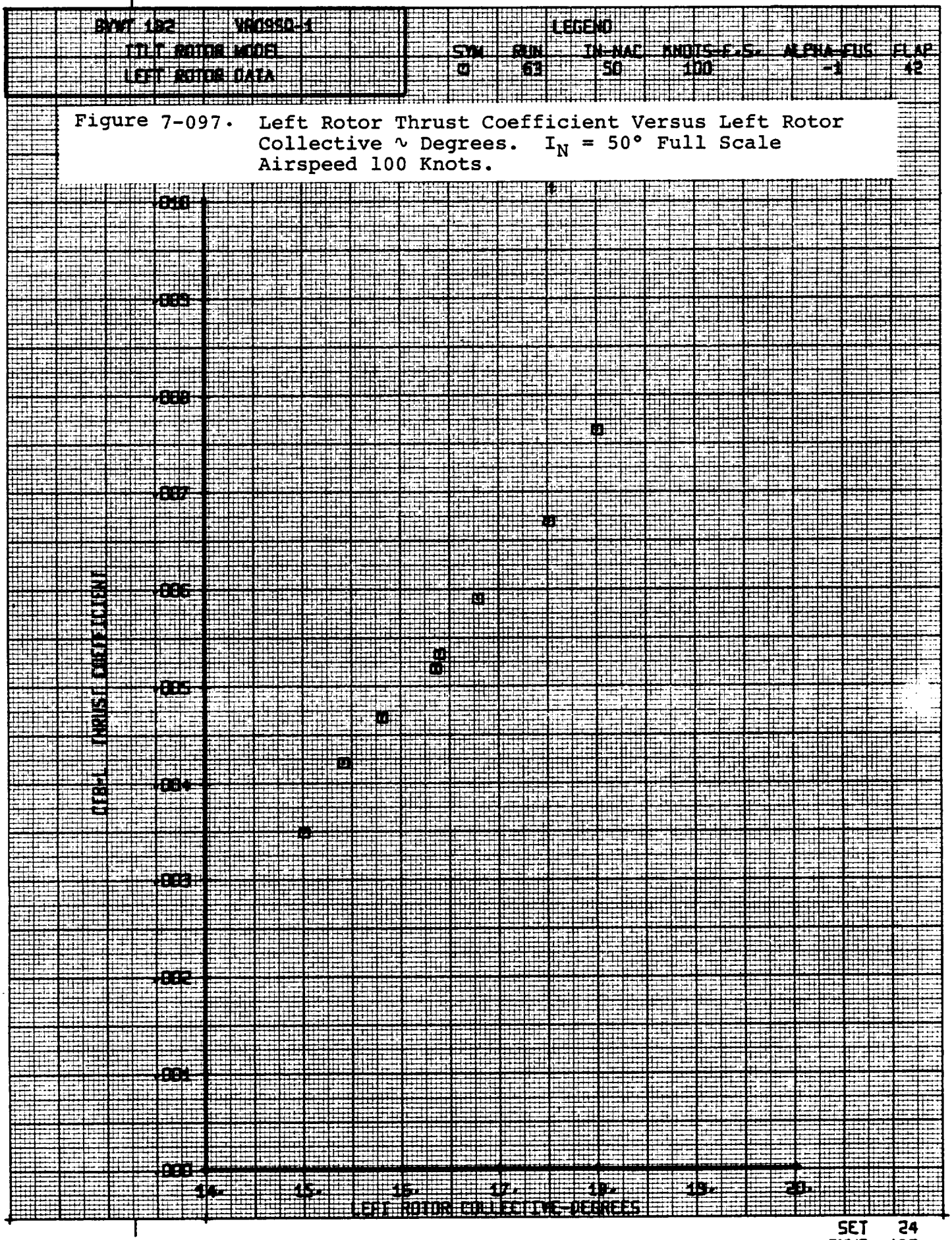


Figure 7-097. Left Rotor Thrust Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

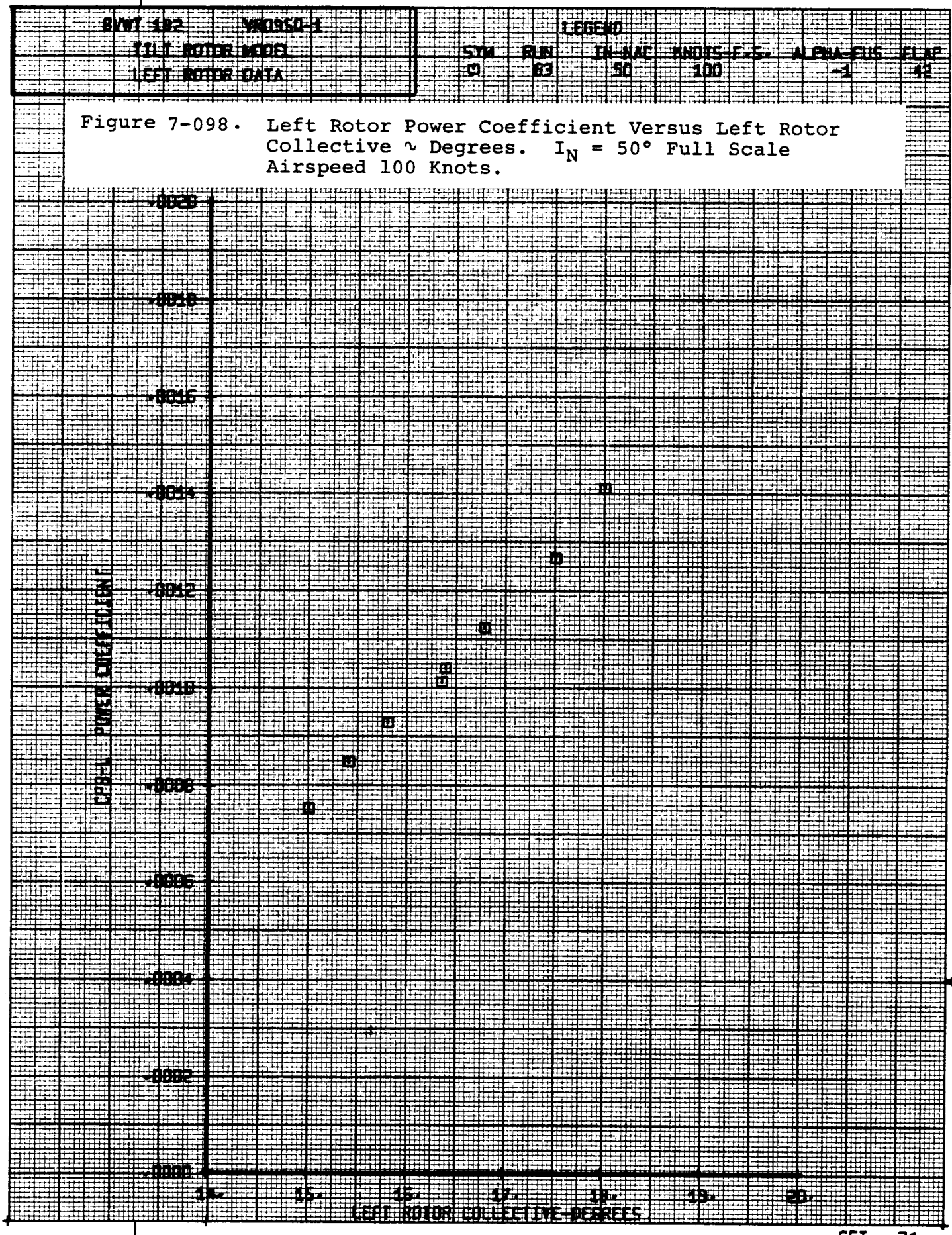


Figure 7-098. Left Rotor Power Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

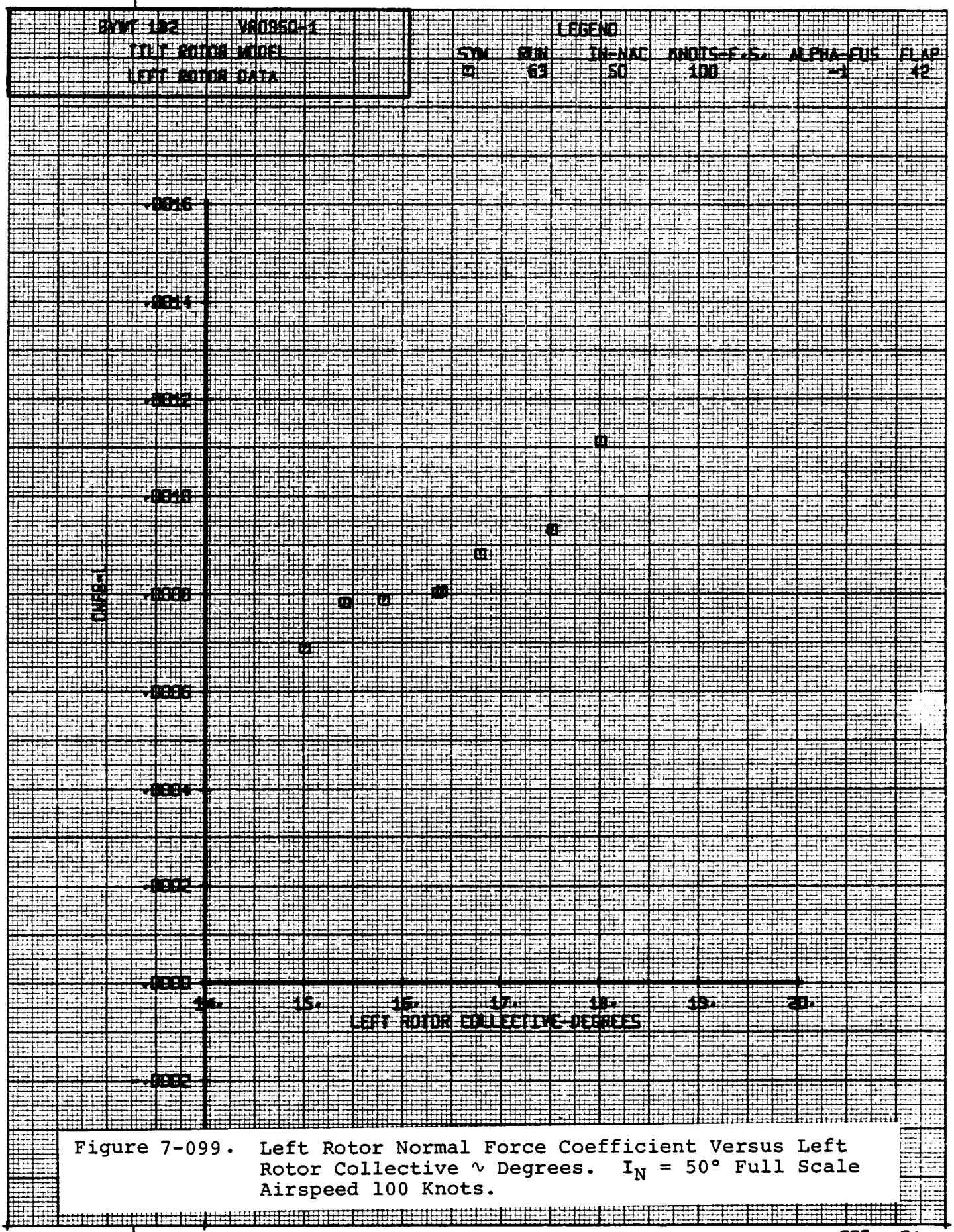


Figure 7-099. Left Rotor Normal Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

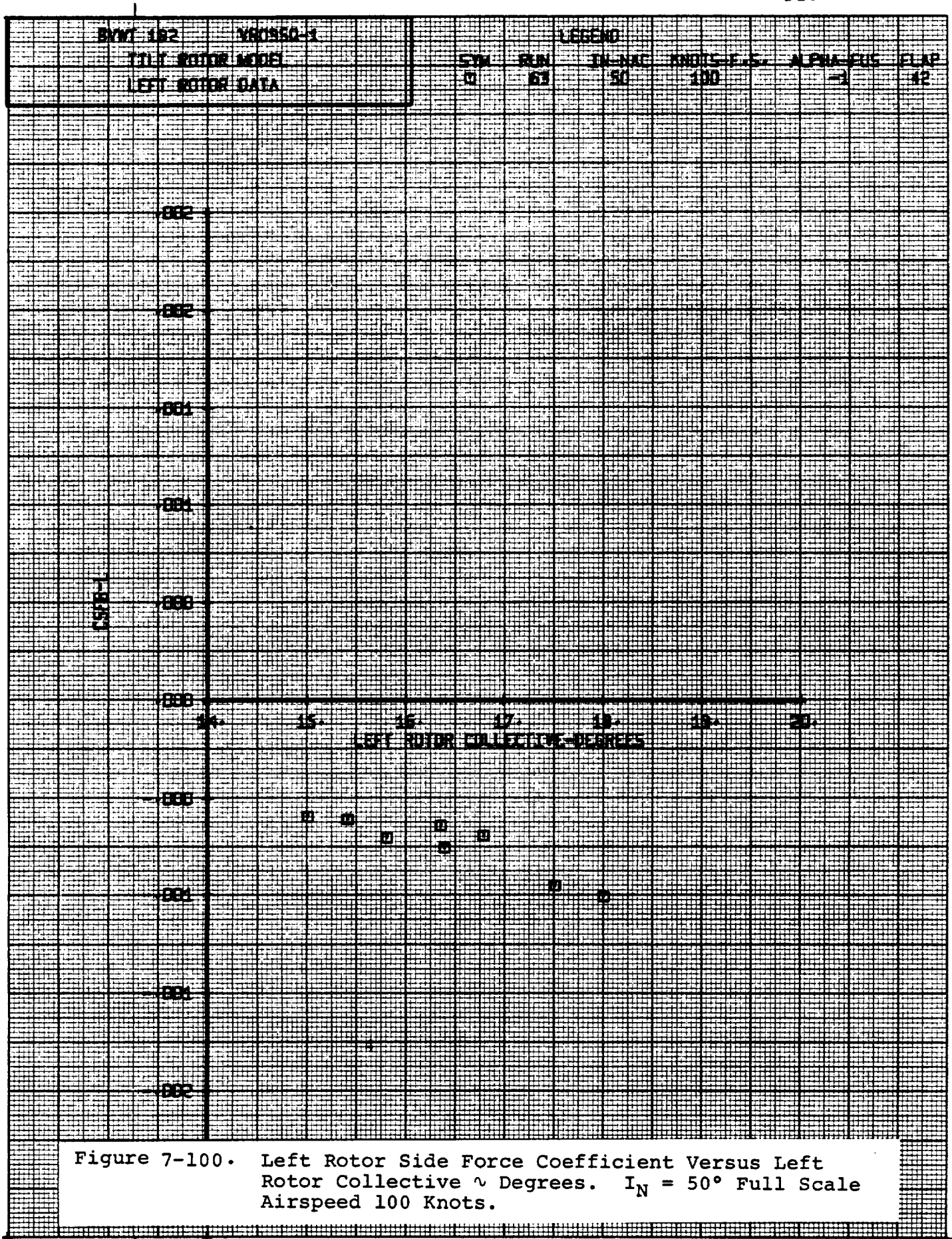


Figure 7-100. Left Rotor Side Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

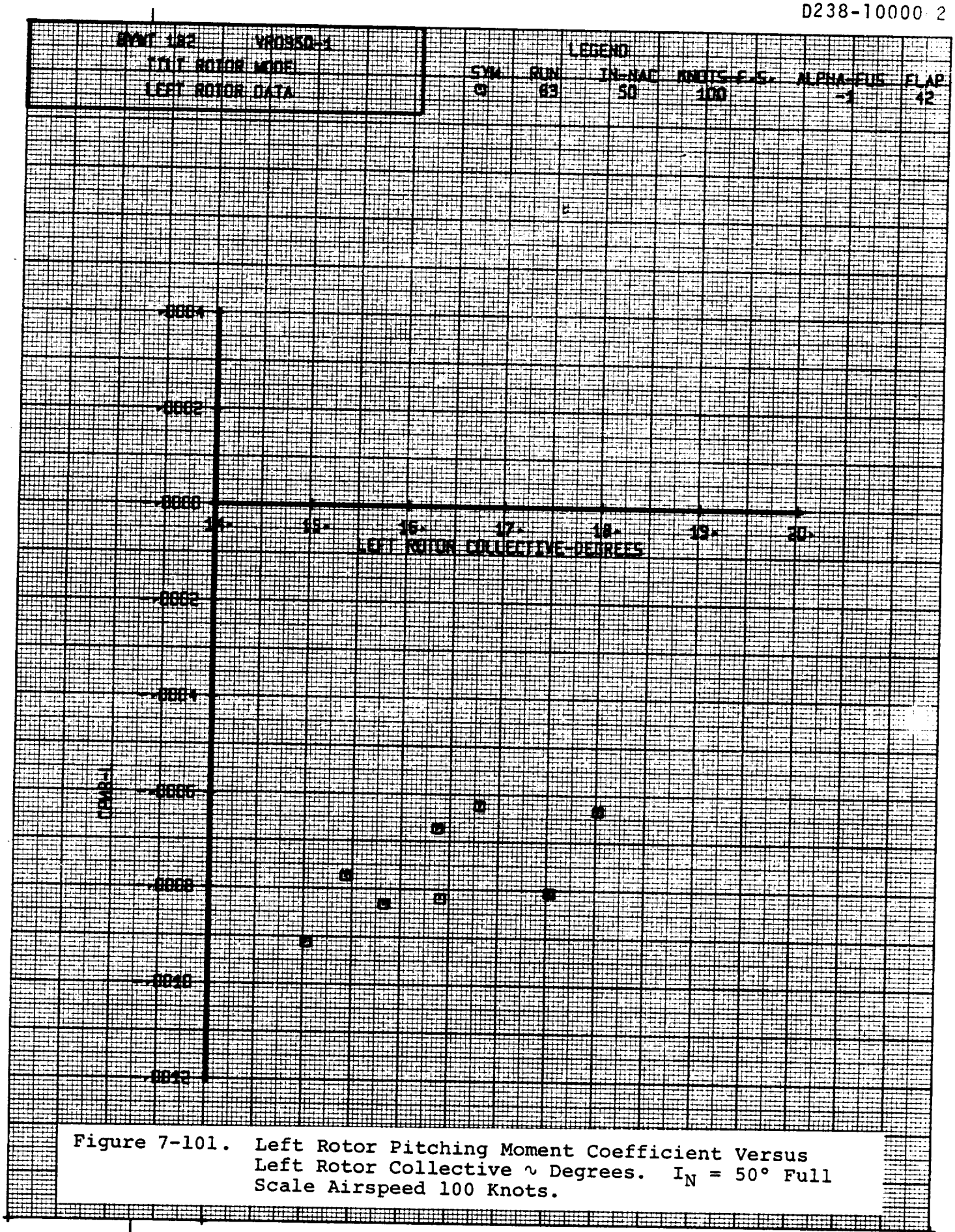


Figure 7-101. Left Rotor Pitching Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

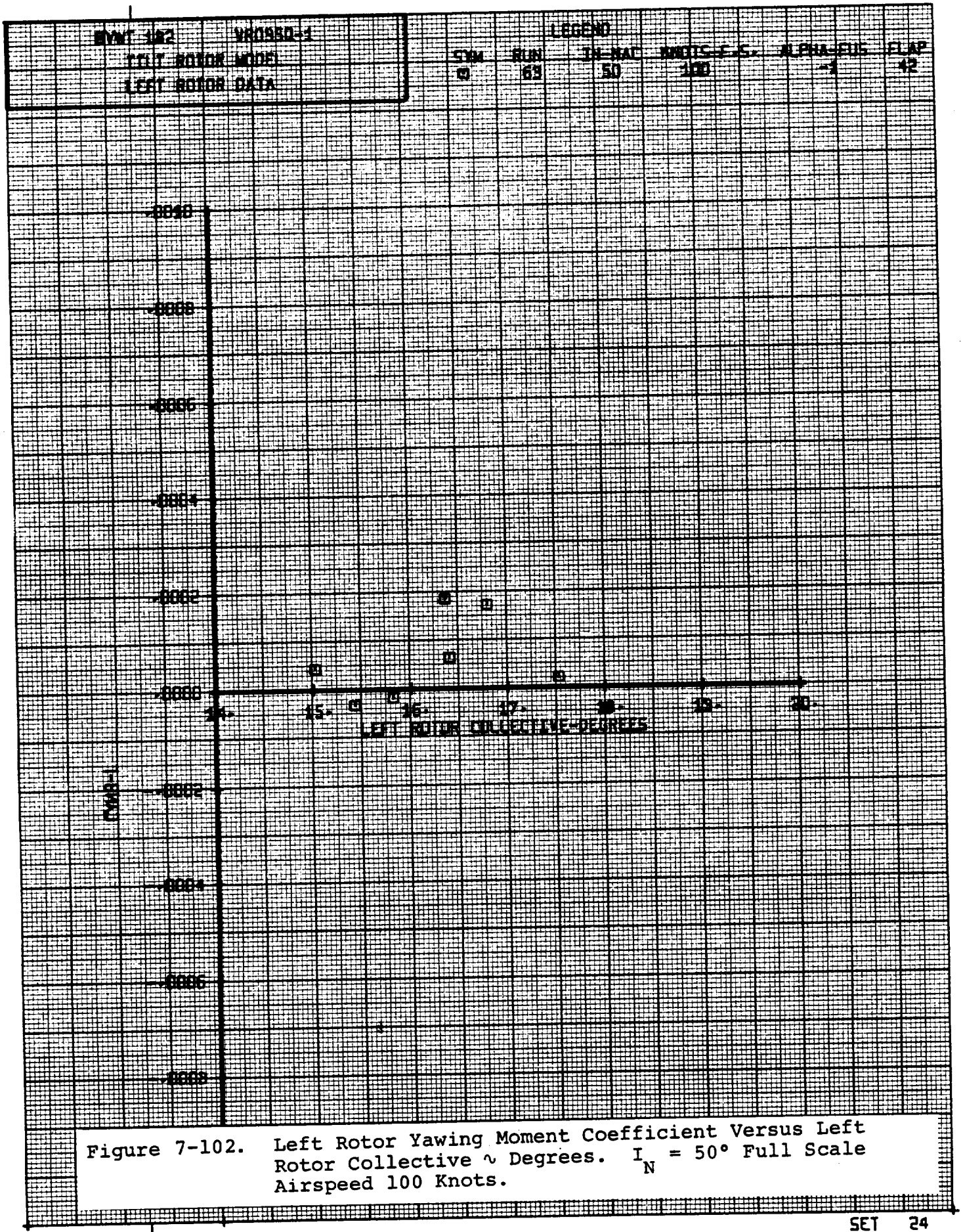


Figure 7-102. Left Rotor Yawing Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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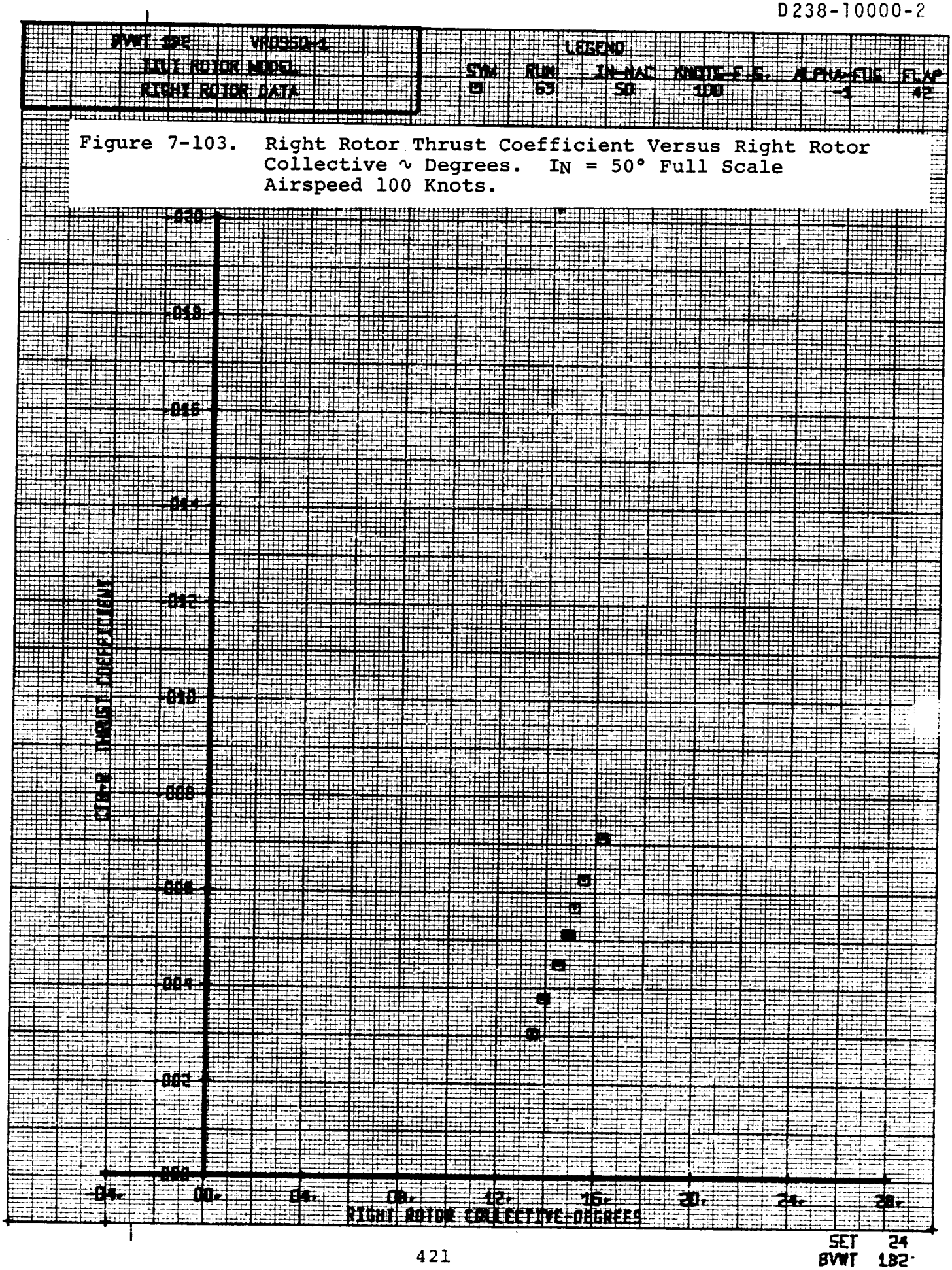


Figure 7-103. Right Rotor Thrust Coefficient Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

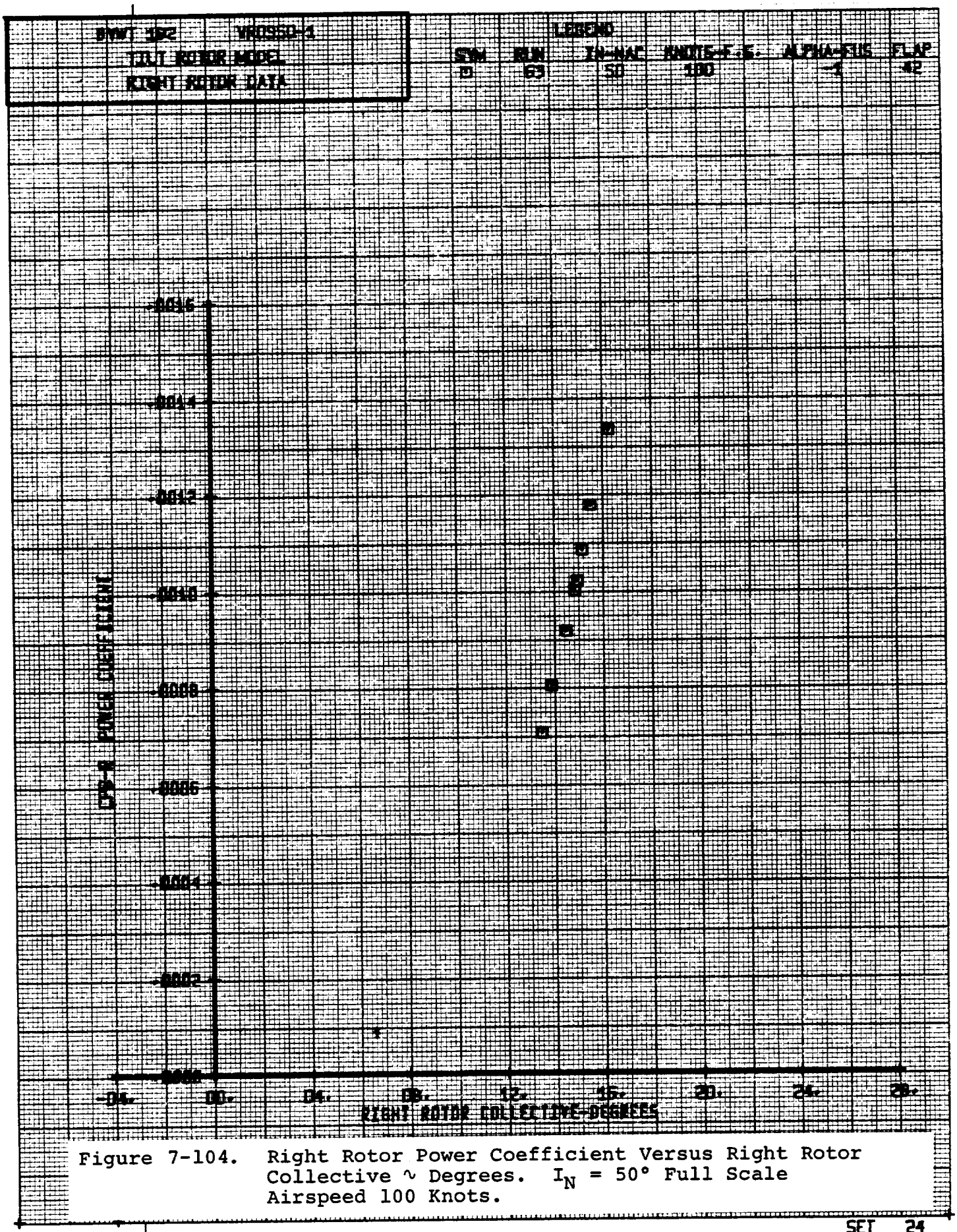


Figure 7-104. Right Rotor Power Coefficient Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

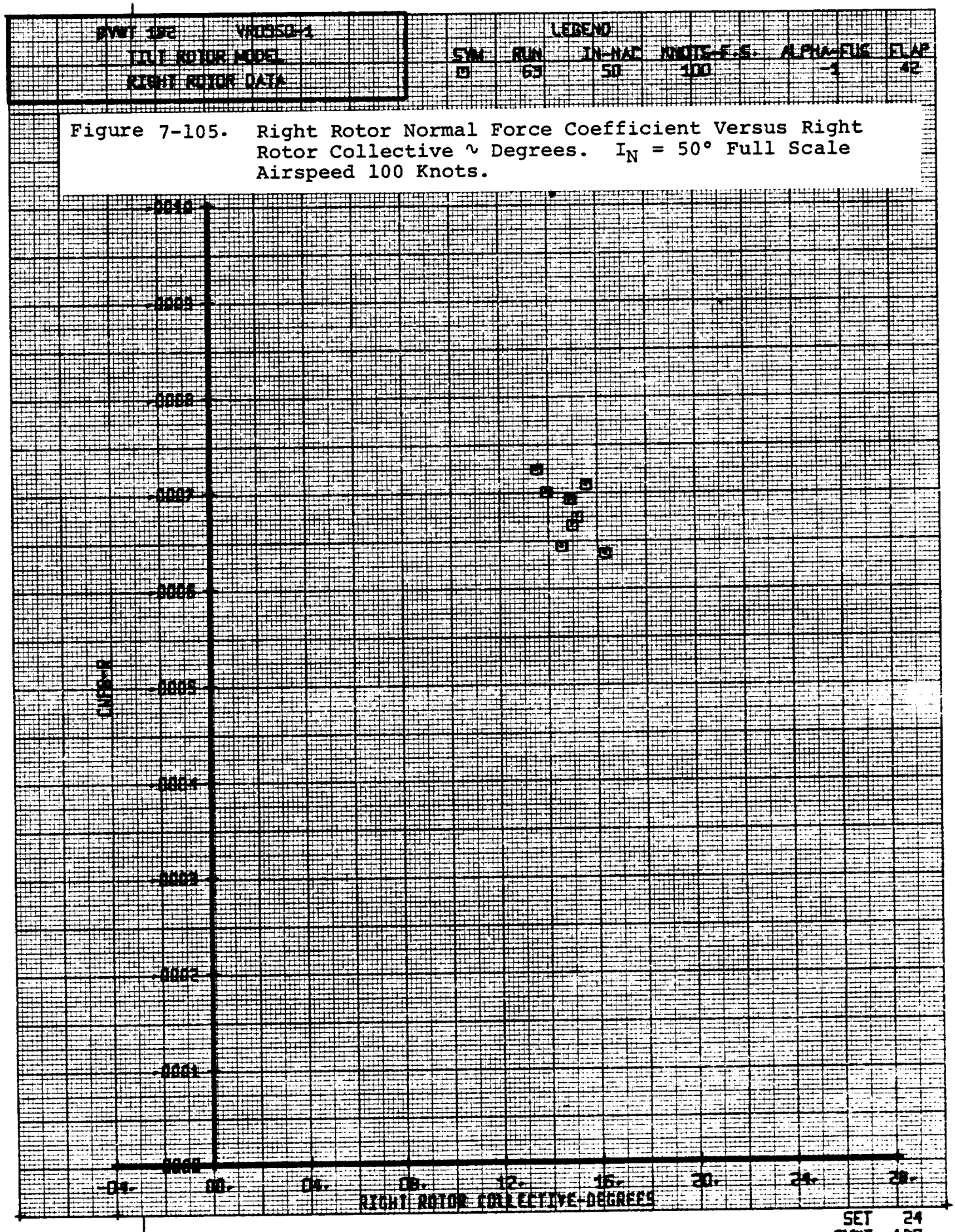


Figure 7-105. Right Rotor Normal Force Coefficient Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

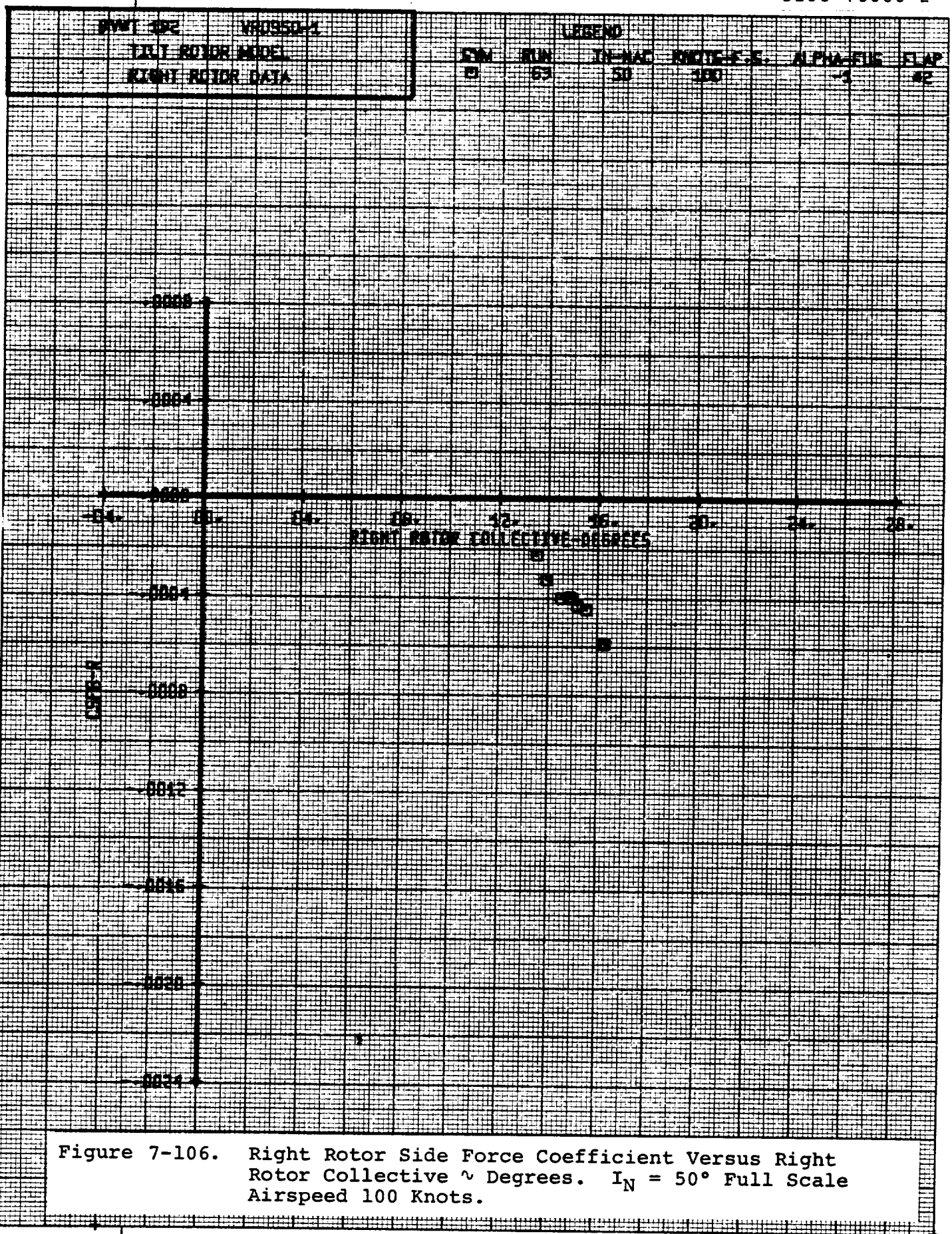


Figure 7-106. Right Rotor Side Force Coefficient Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

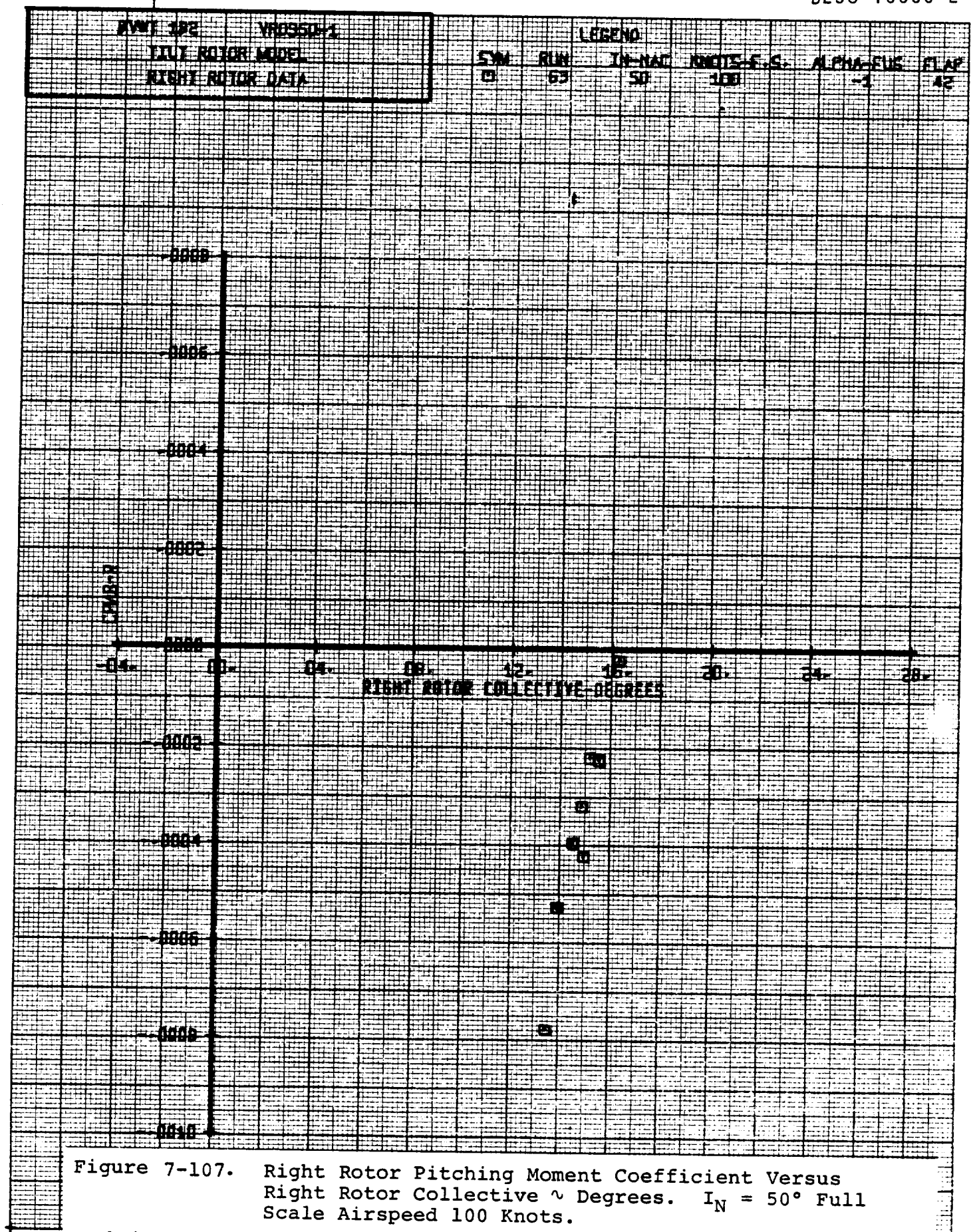


Figure 7-107. Right Rotor Pitching Moment Coefficient Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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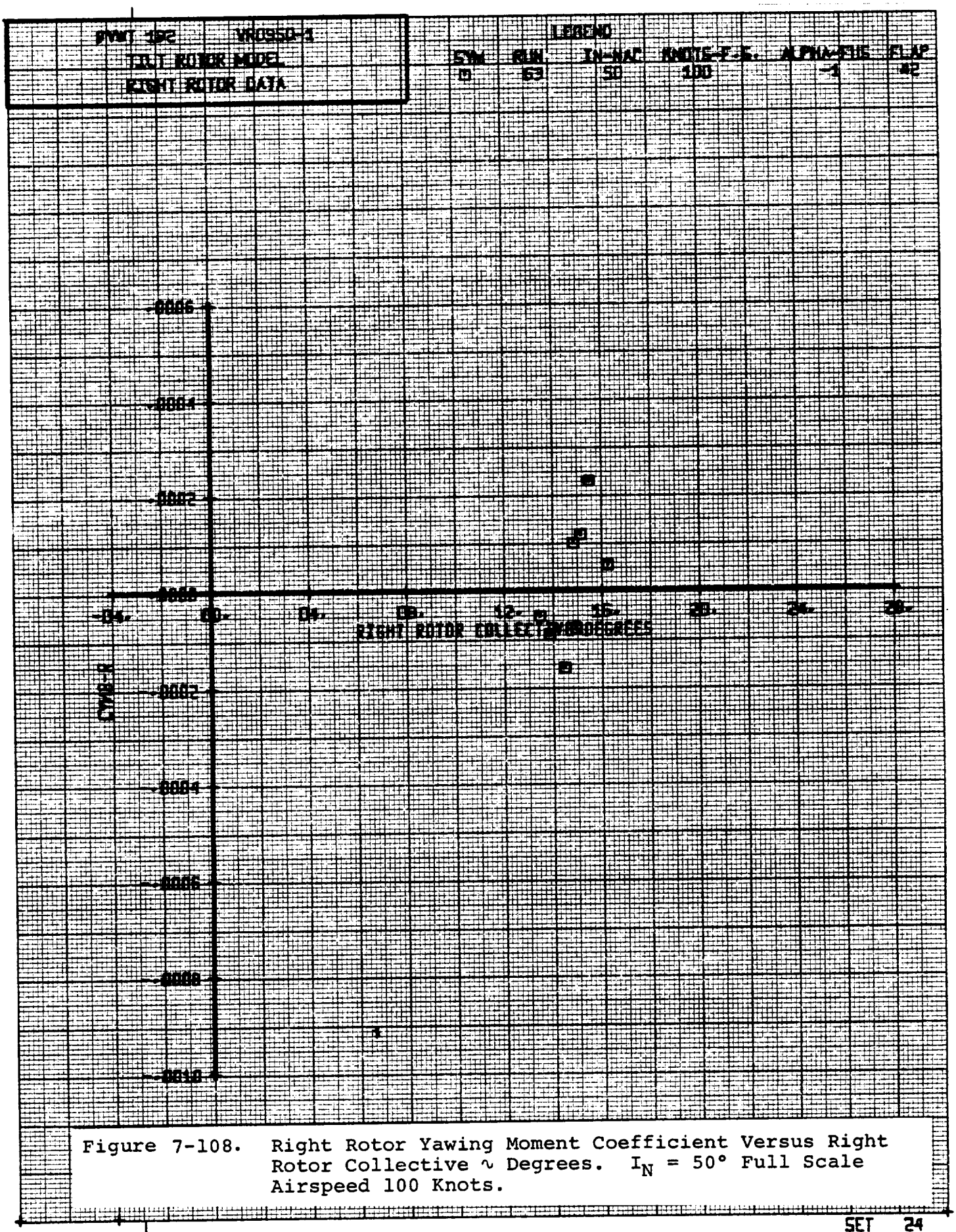


Figure 7-108. Right Rotor Yawing Moment Coefficient Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

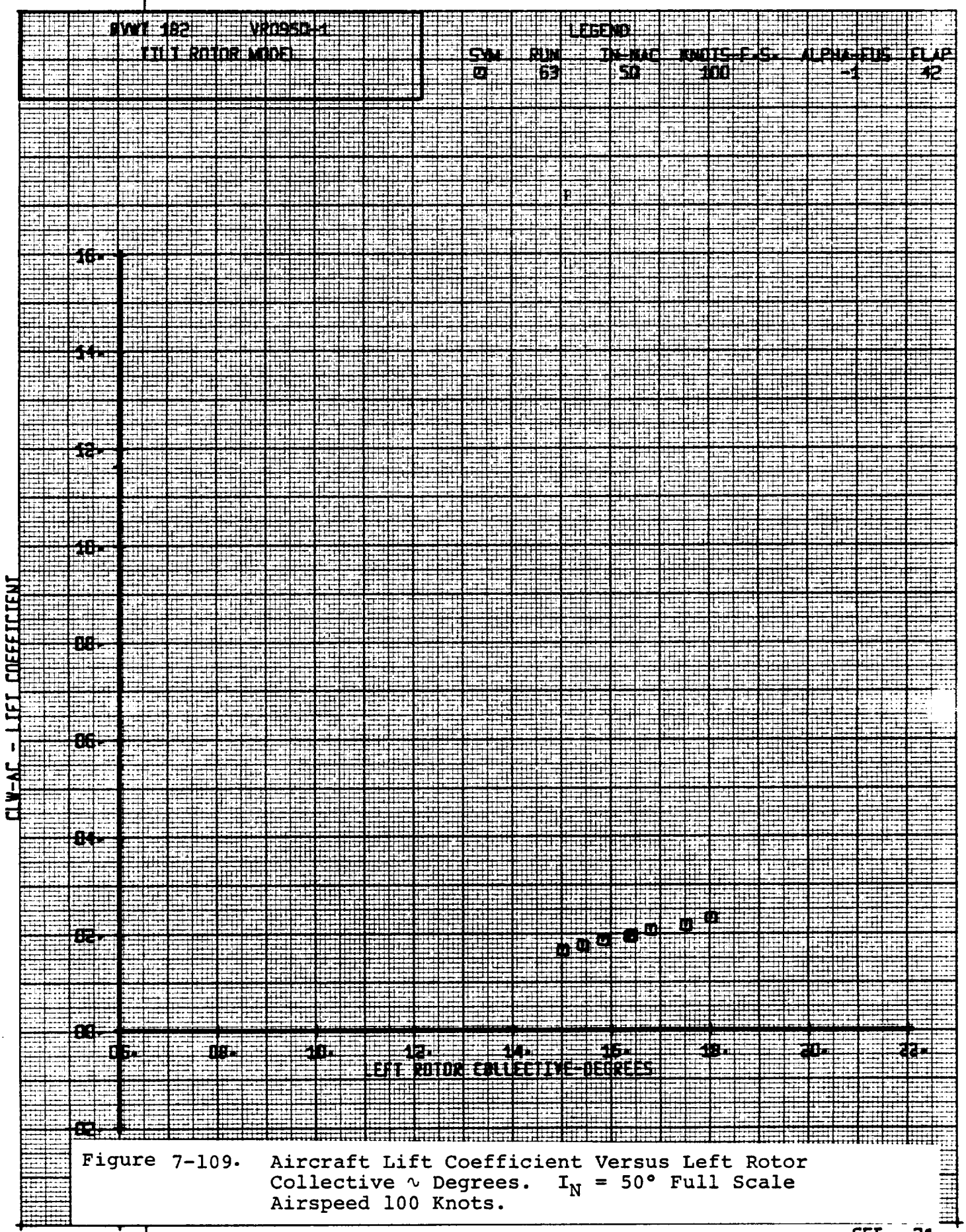


Figure 7-109. Aircraft Lift Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

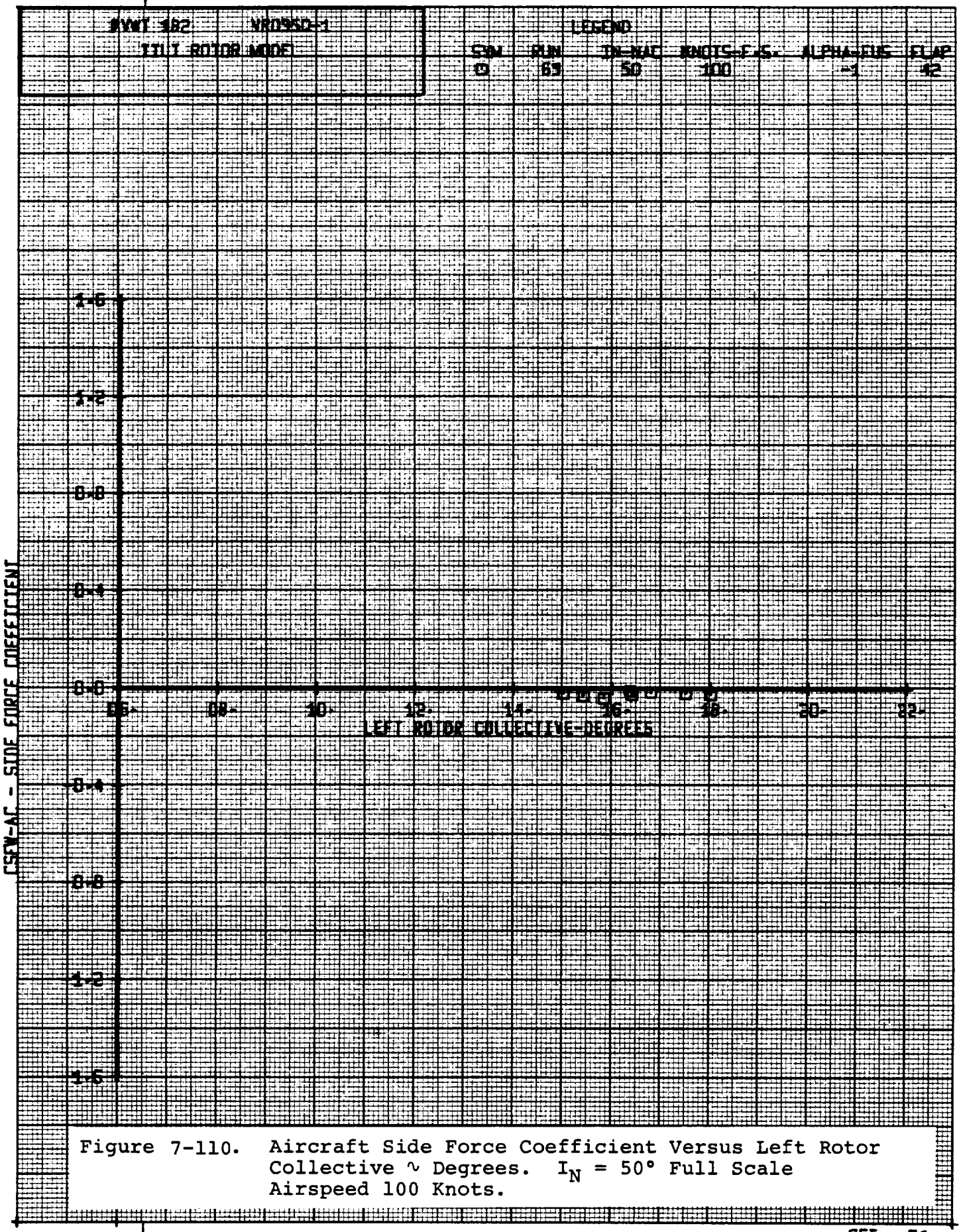


Figure 7-110. Aircraft Side Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

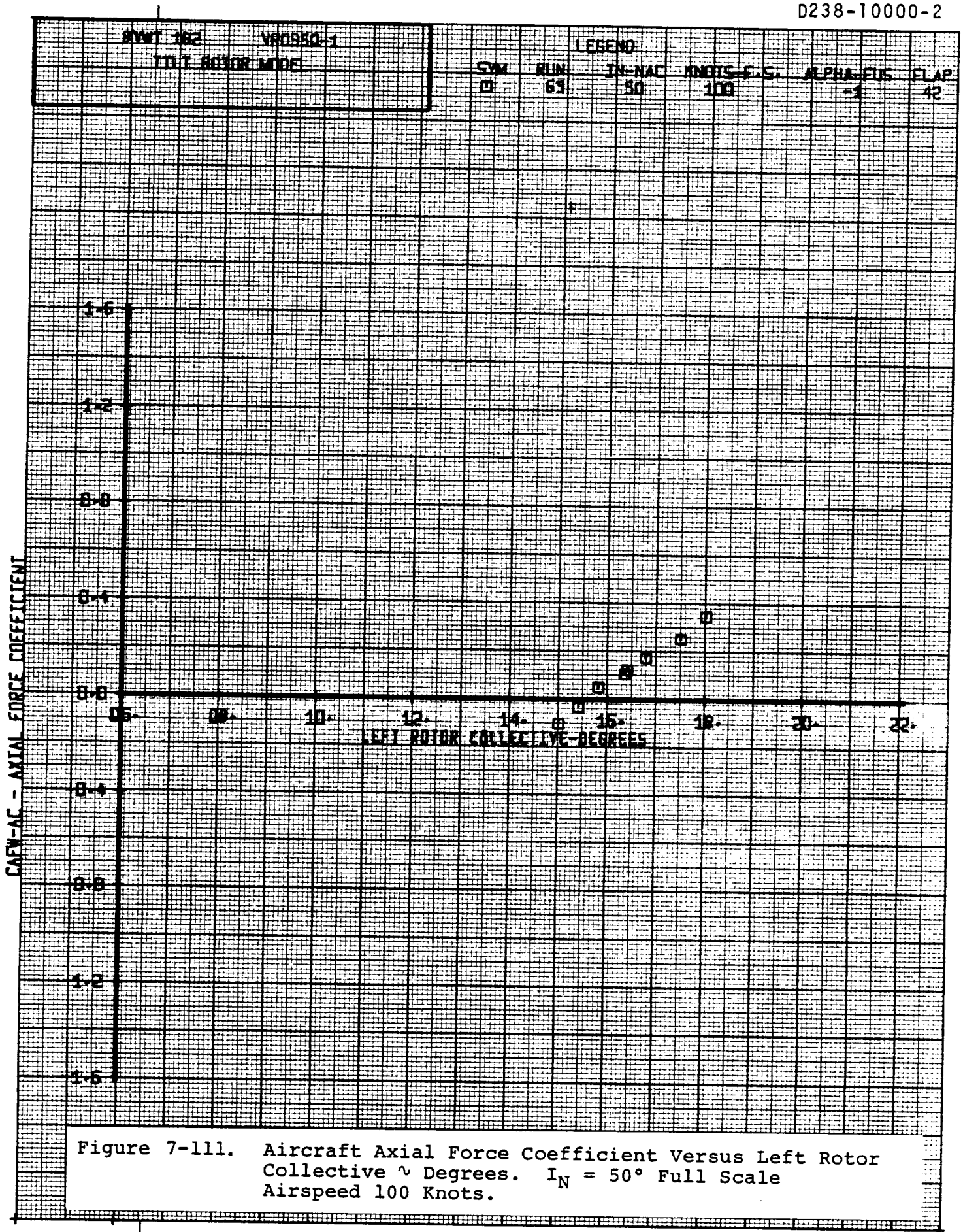


Figure 7-111. Aircraft Axial Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

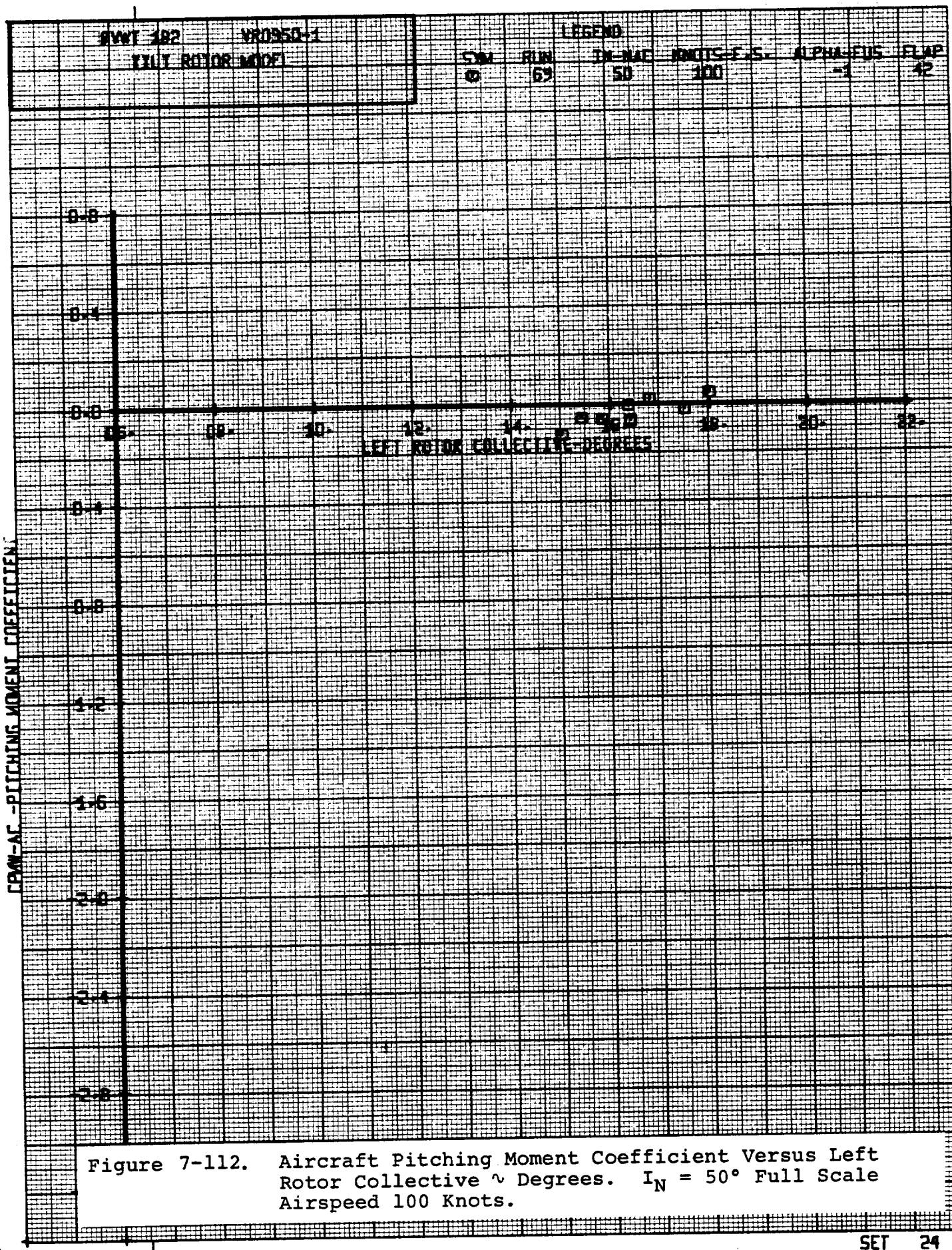


Figure 7-112. Aircraft Pitching Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

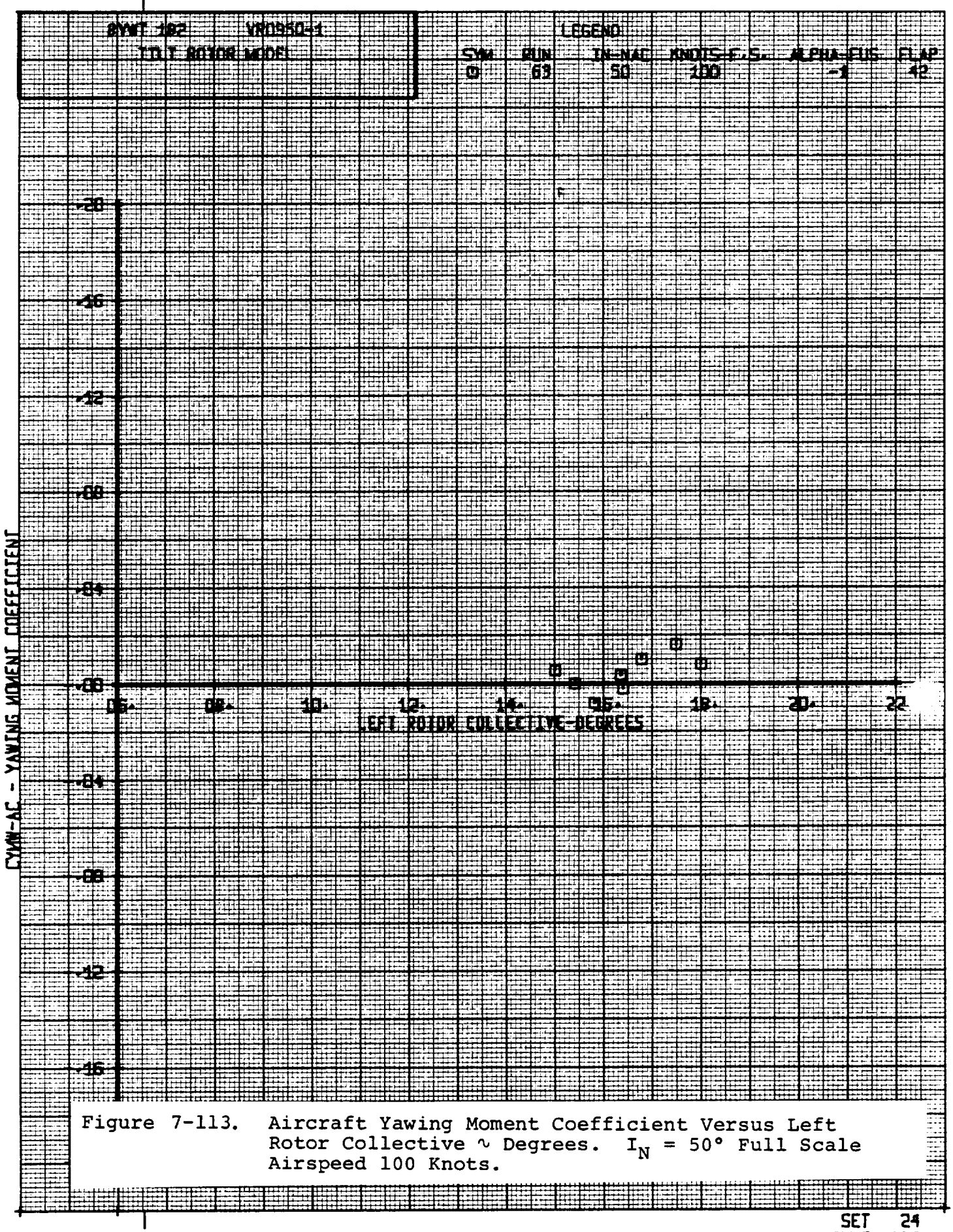


Figure 7-113. Aircraft Yawing Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

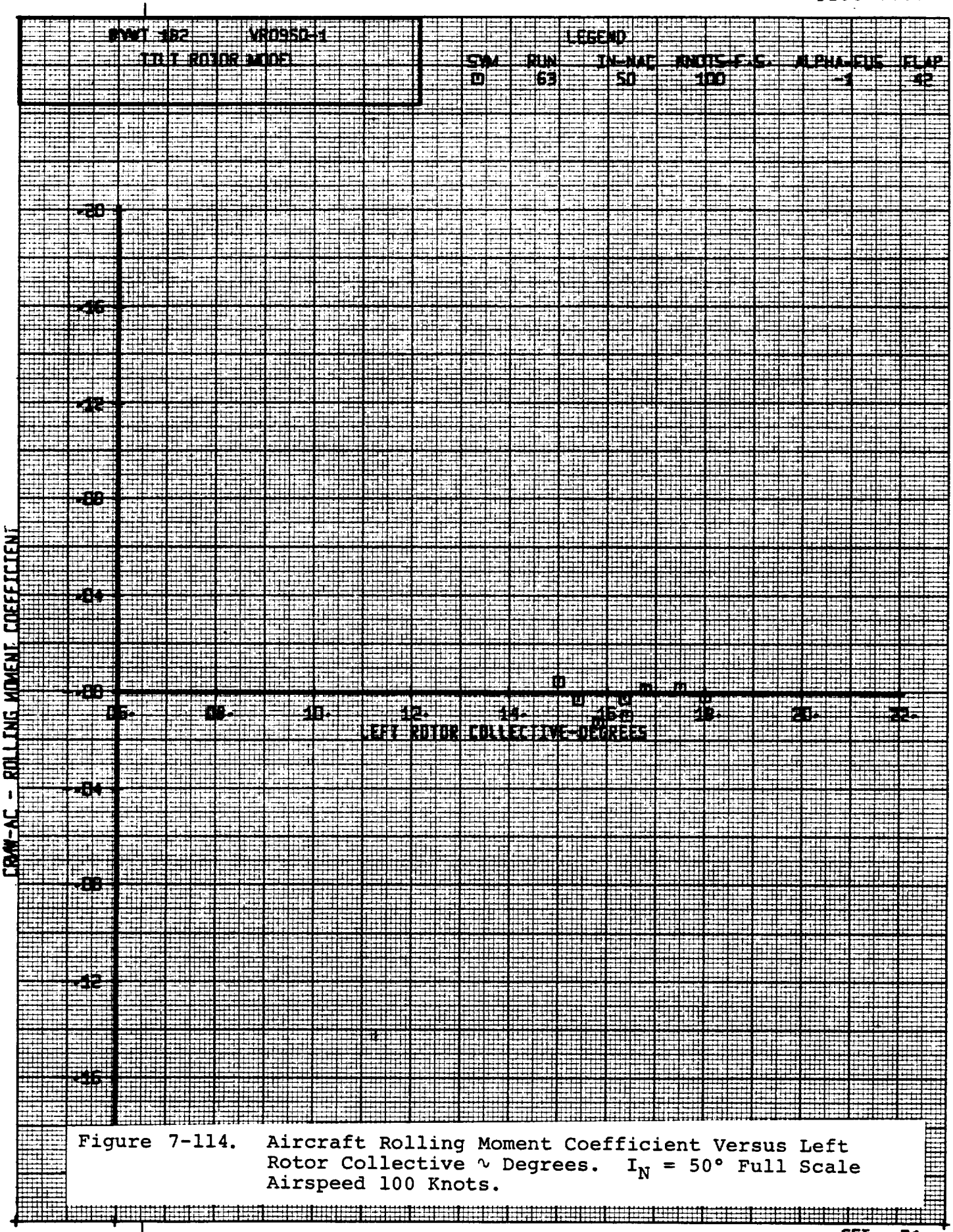


Figure 7-114. Aircraft Rolling Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

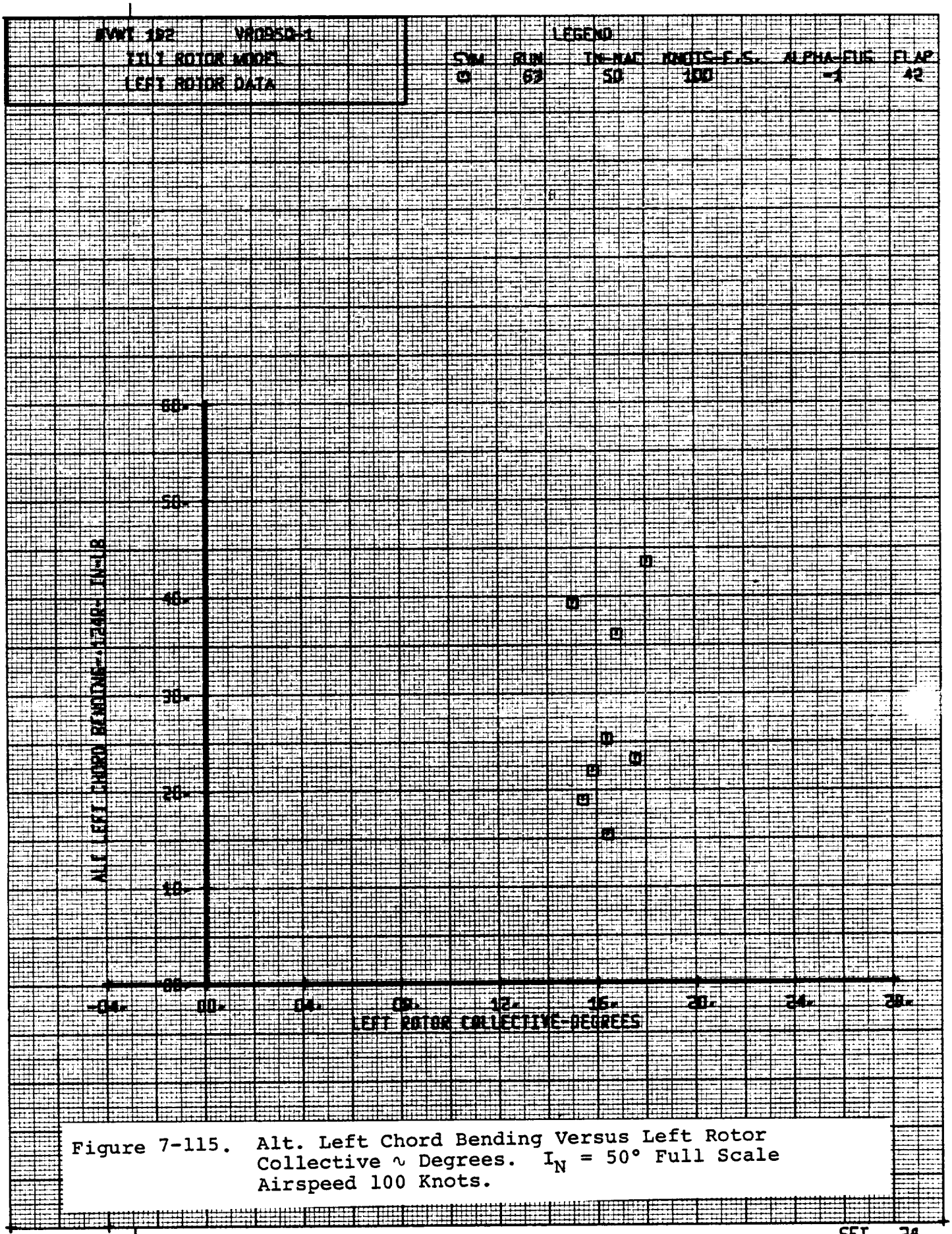


Figure 7-115. Alt. Left Chord Bending Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

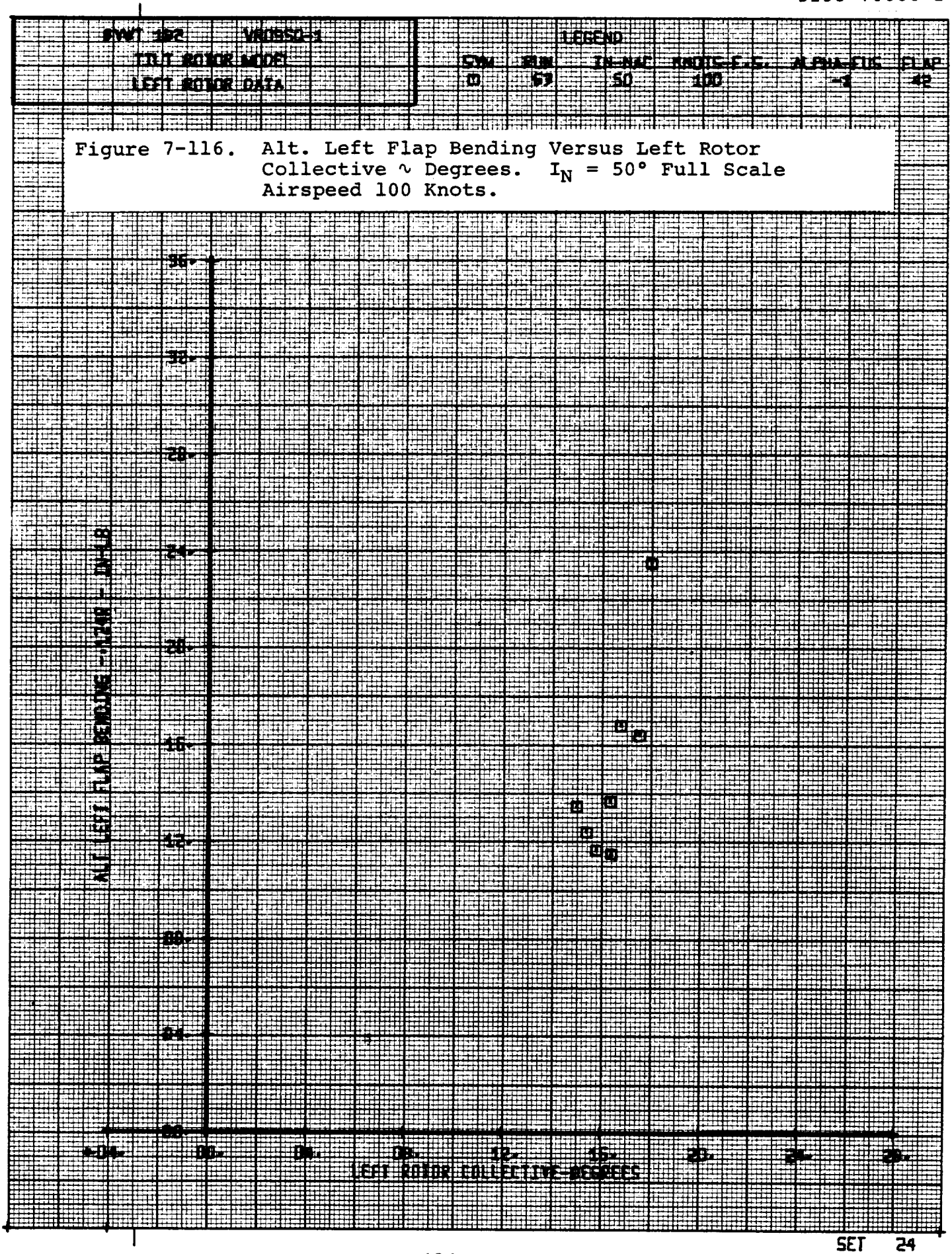


Figure 7-116. Alt. Left Flap Bending Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

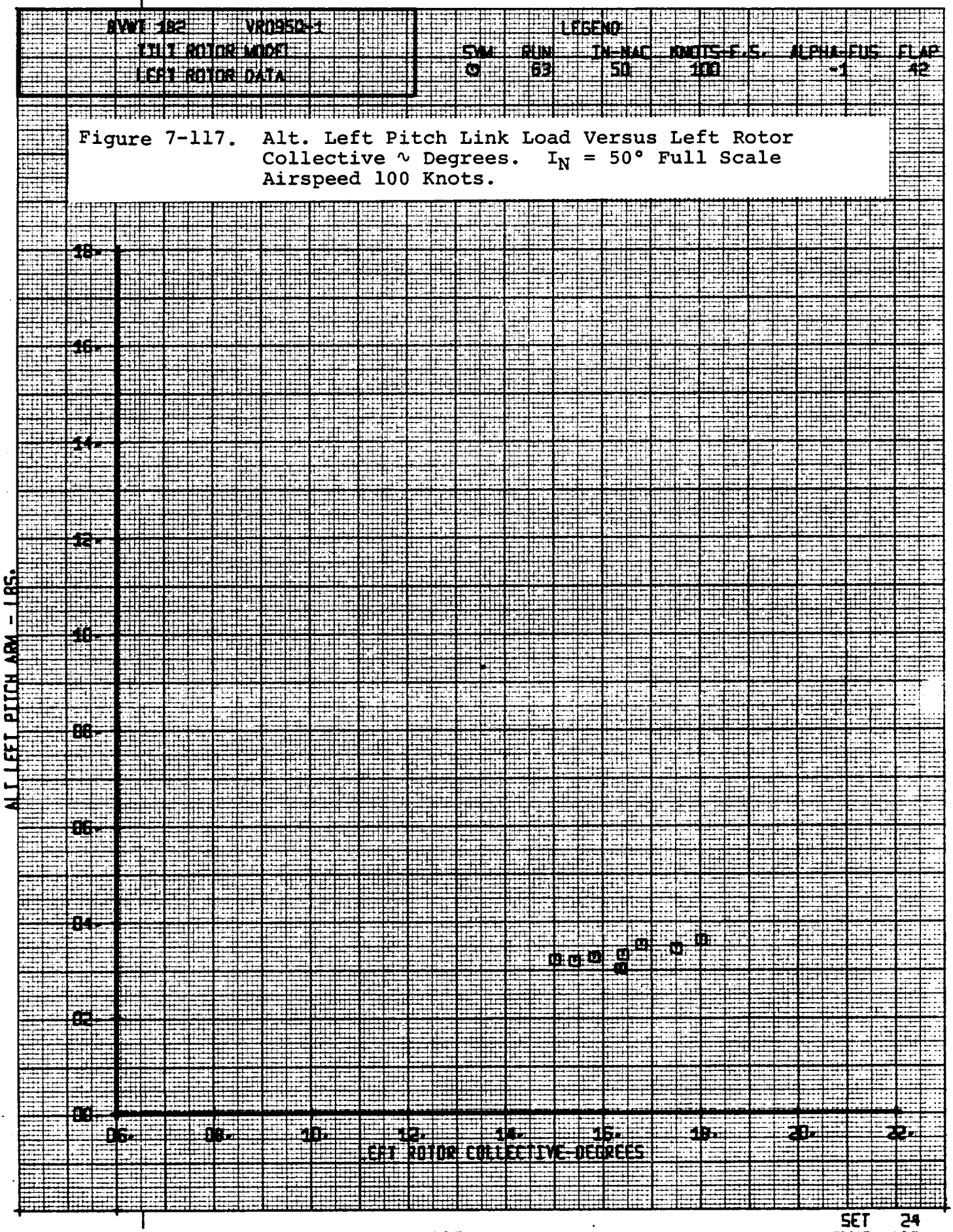


Figure 7-117. Alt. Left Pitch Link Load Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

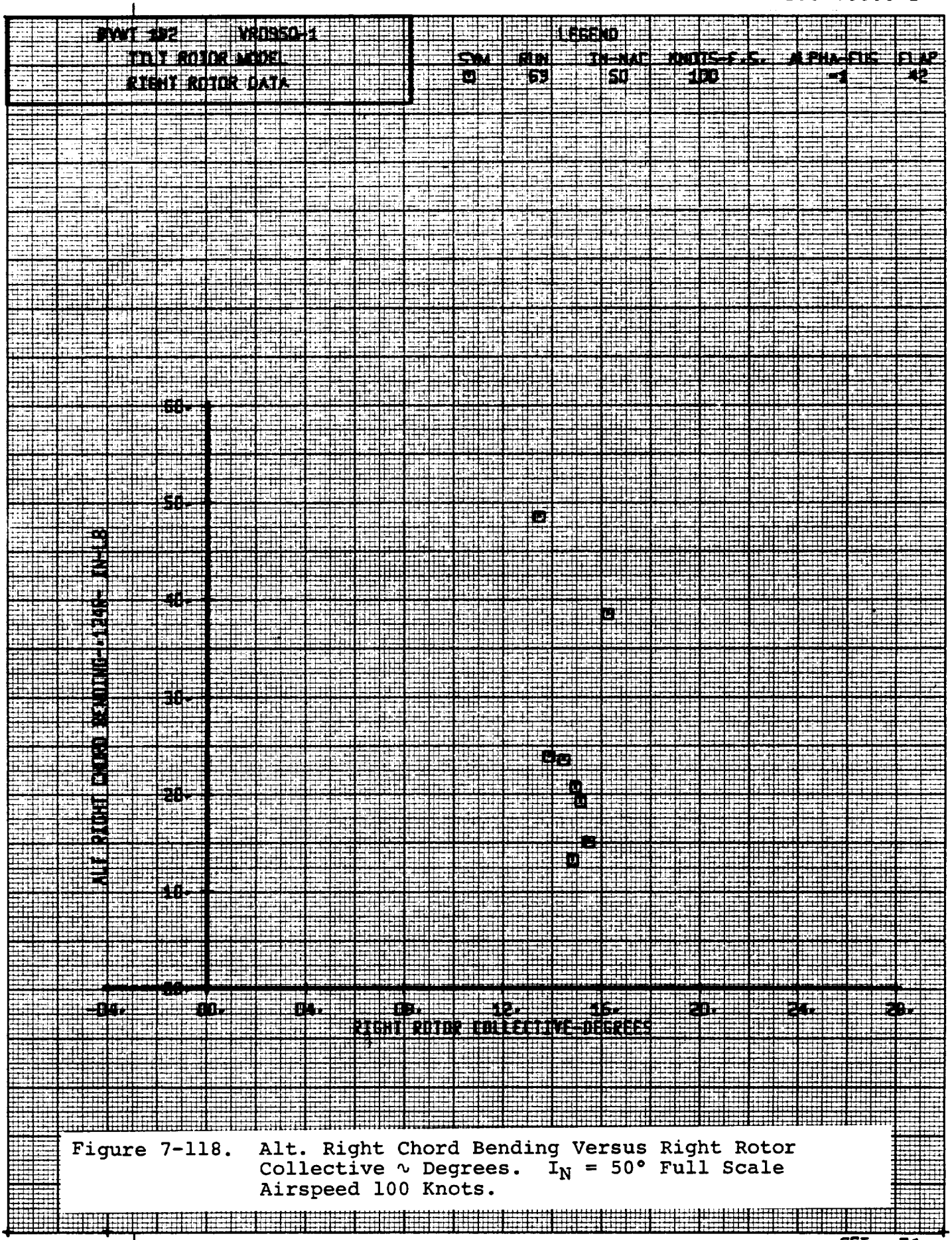


Figure 7-118. Alt. Right Chord Bending Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

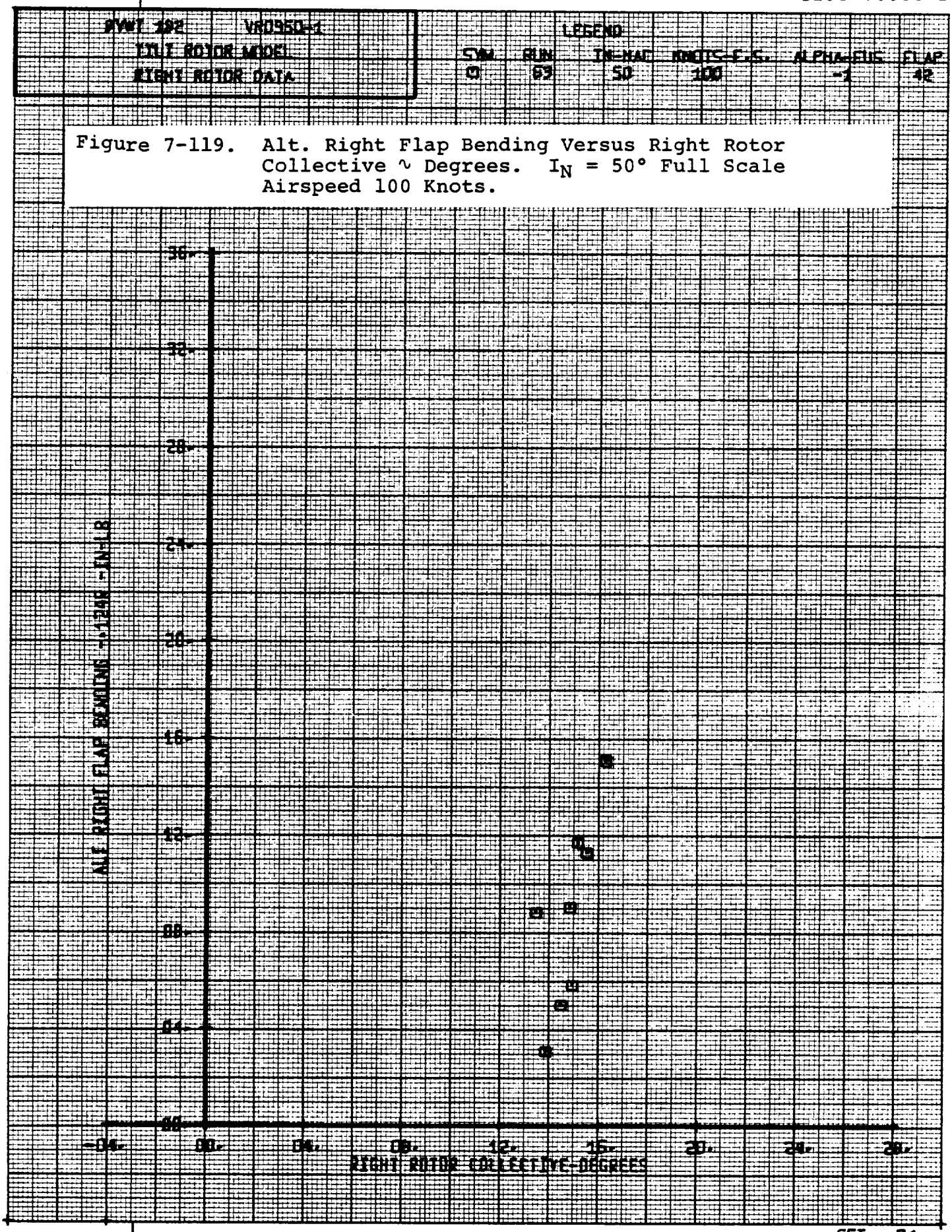


Figure 7-119. Alt. Right Flap Bending Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

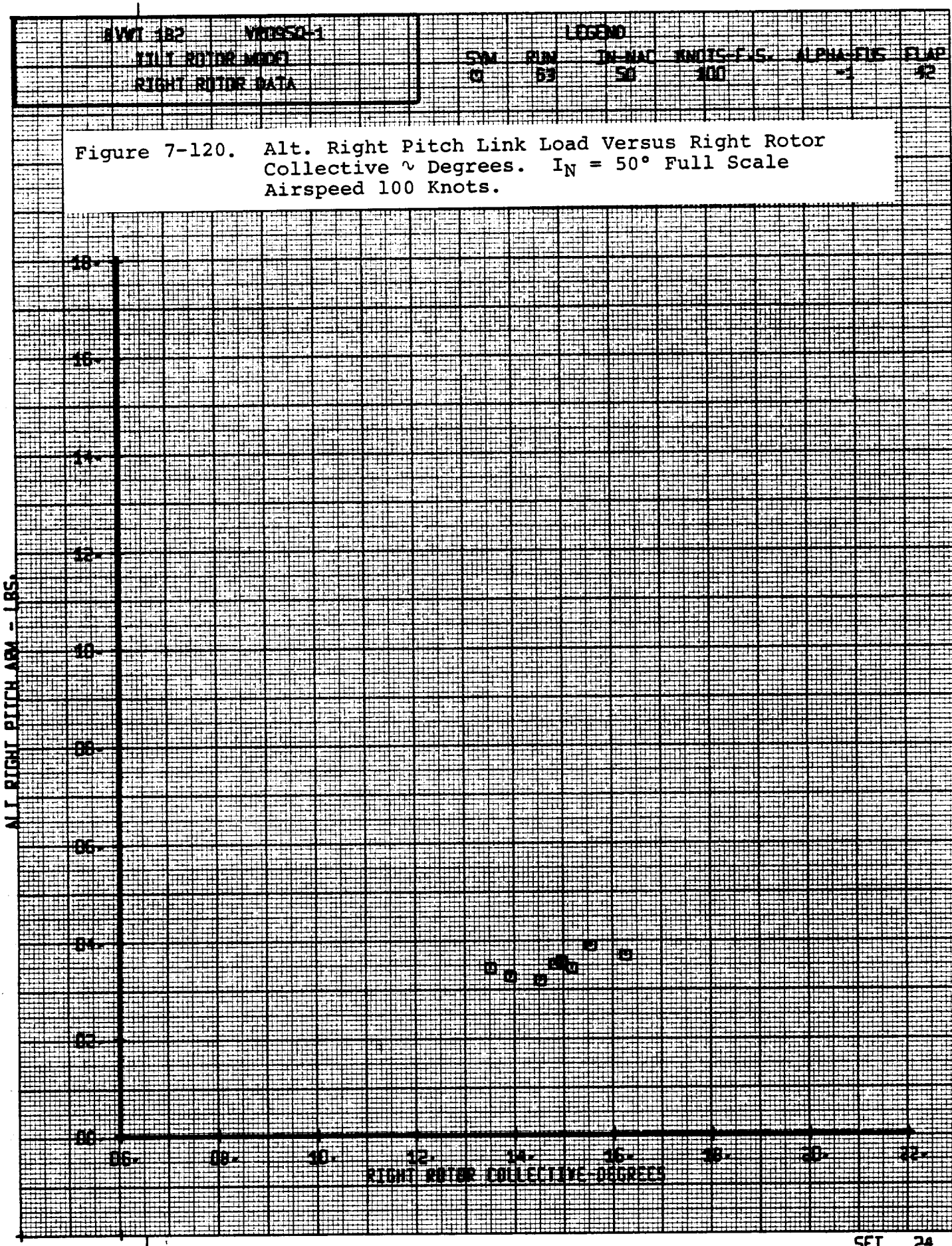


Figure 7-120. Alt. Right Pitch Link Load Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

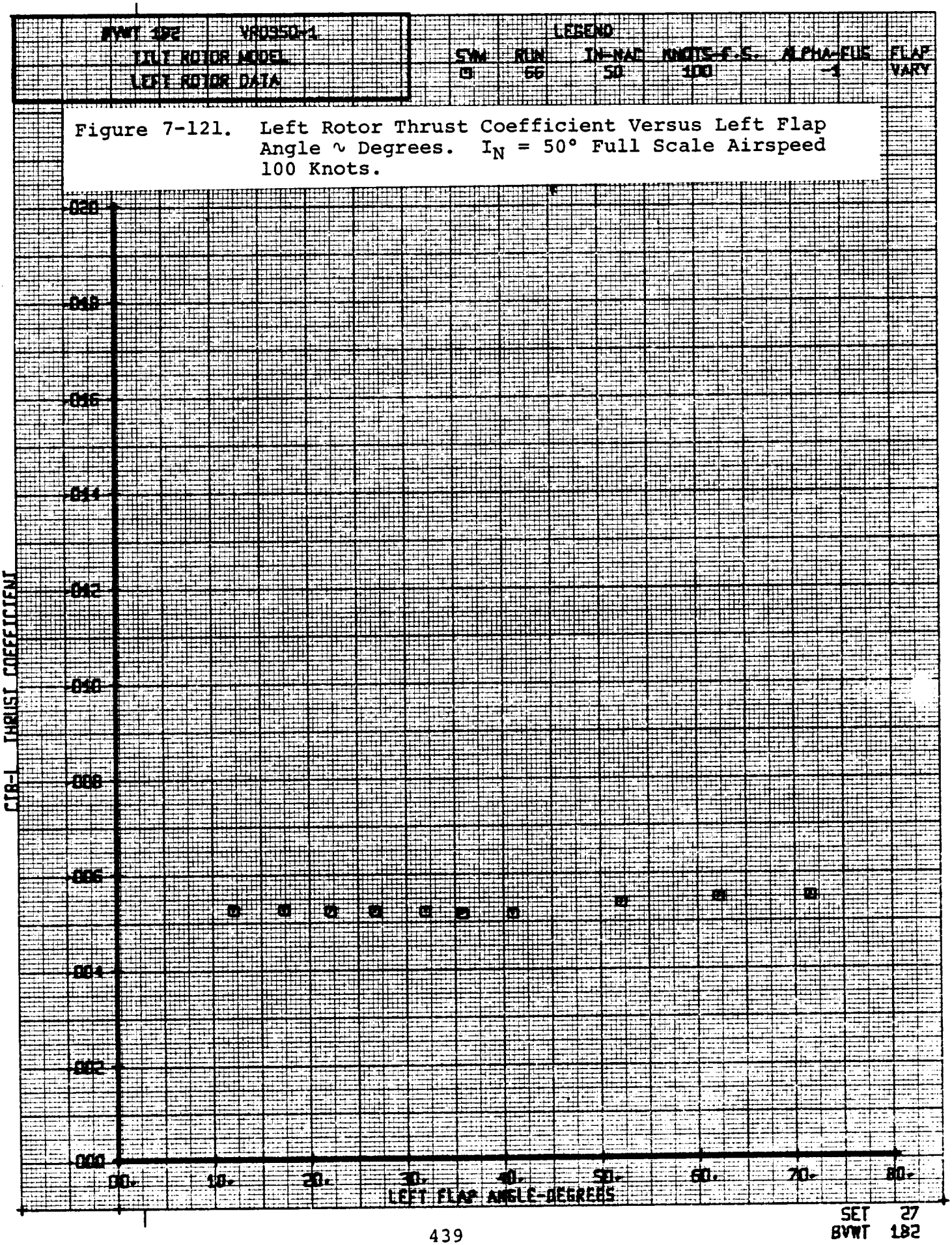


Figure 7-121. Left Rotor Thrust Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

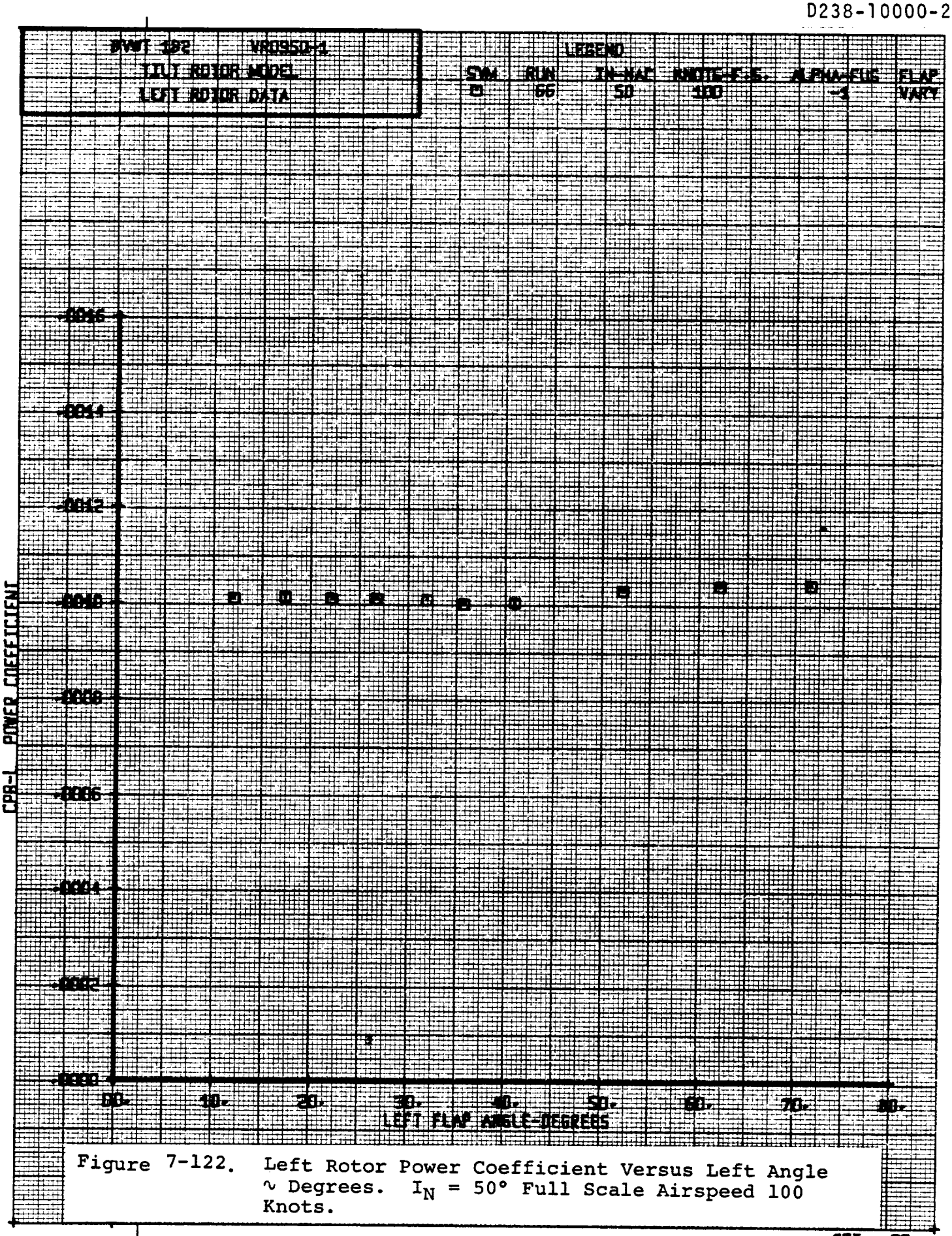


Figure 7-122. Left Rotor Power Coefficient Versus Left Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

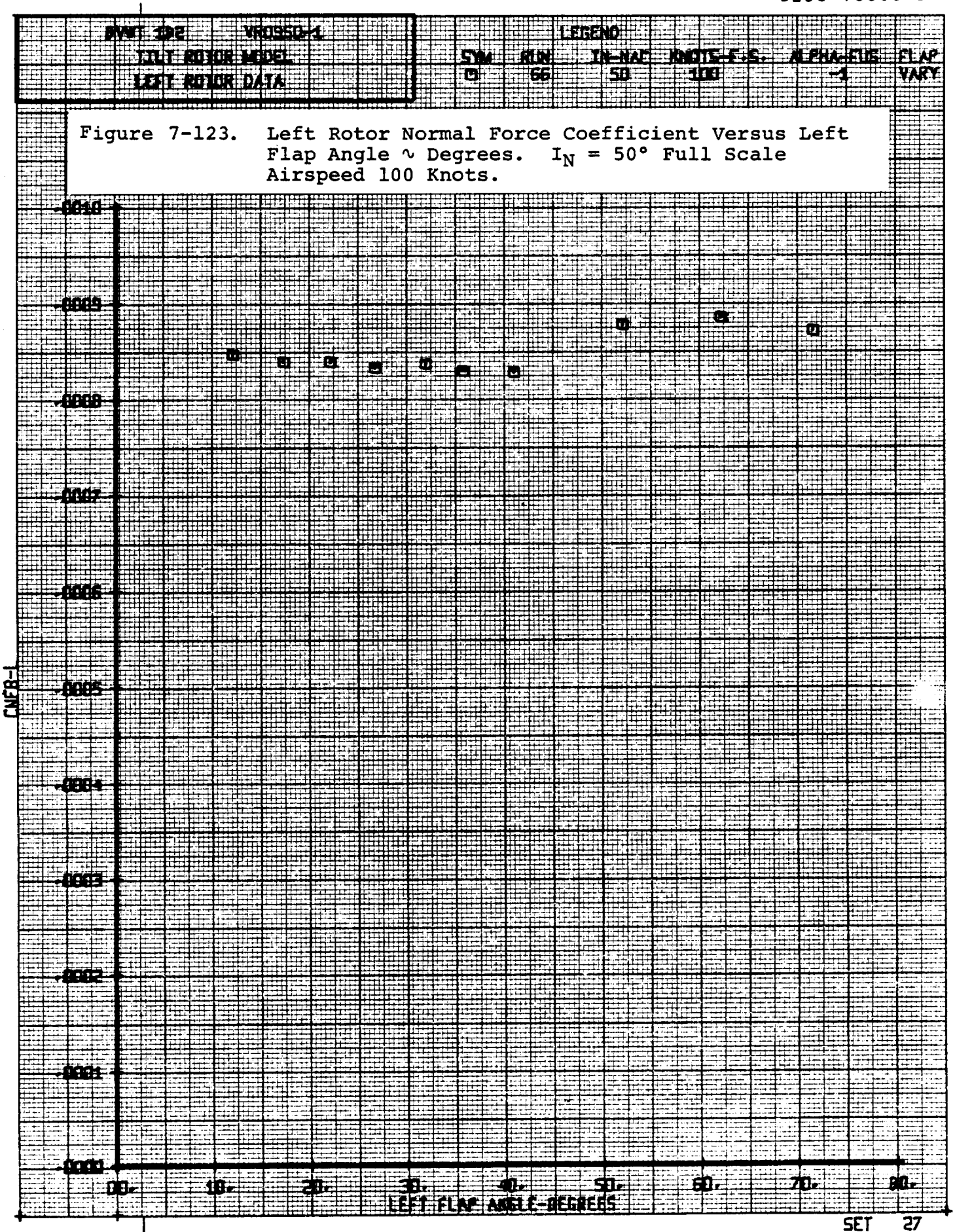


Figure 7-123. Left Rotor Normal Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

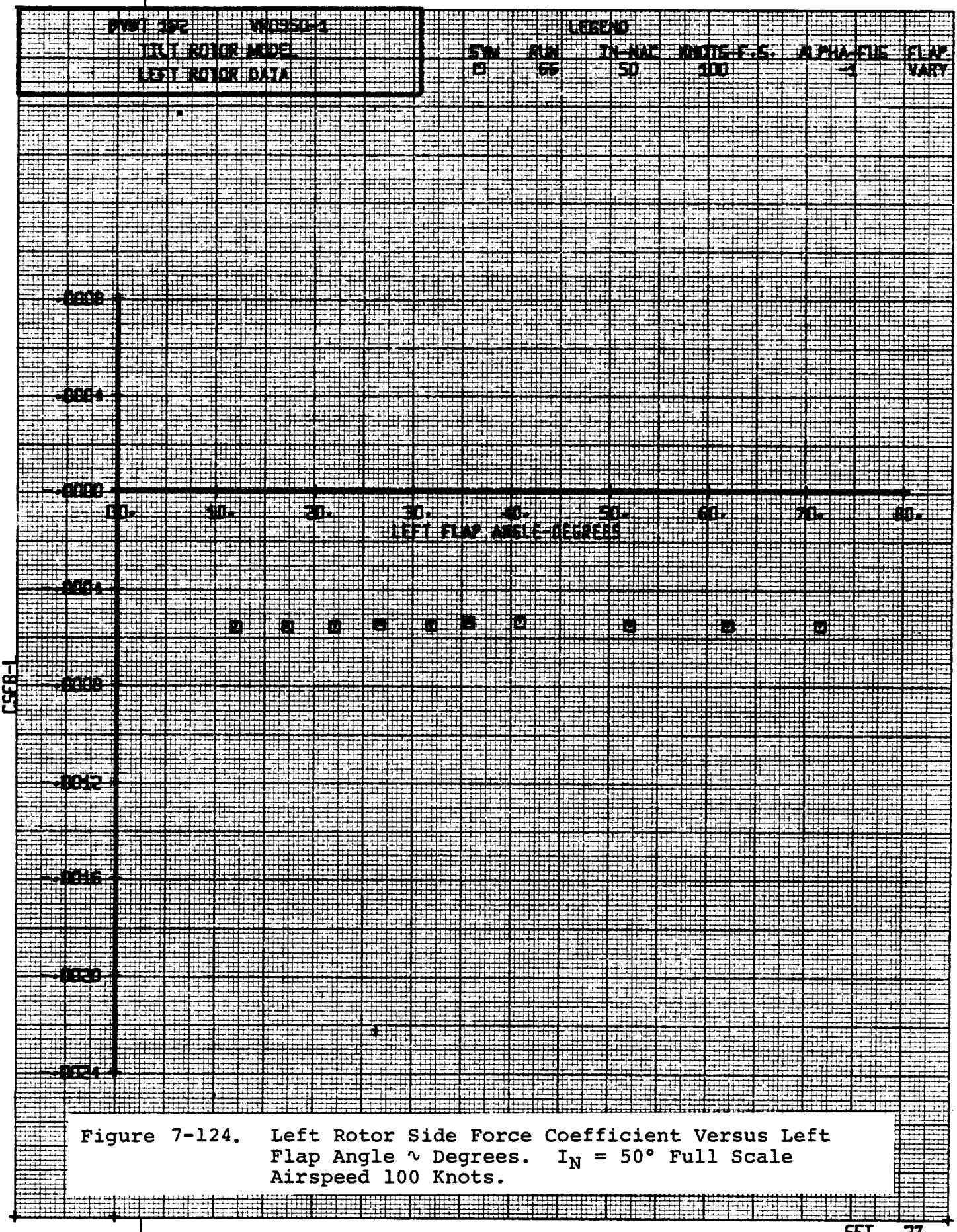


Figure 7-124. Left Rotor Side Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

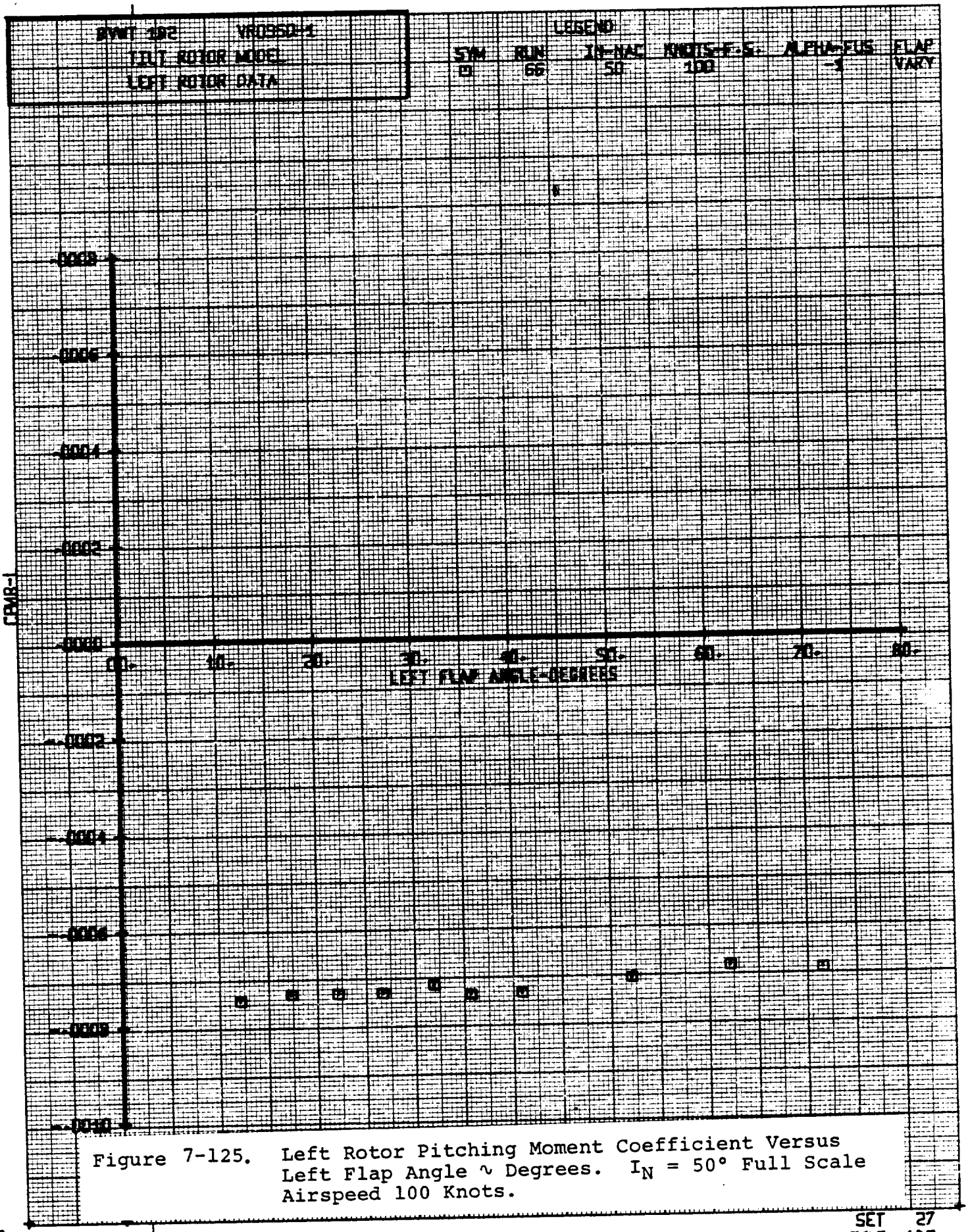


Figure 7-125. Left Rotor Pitching Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

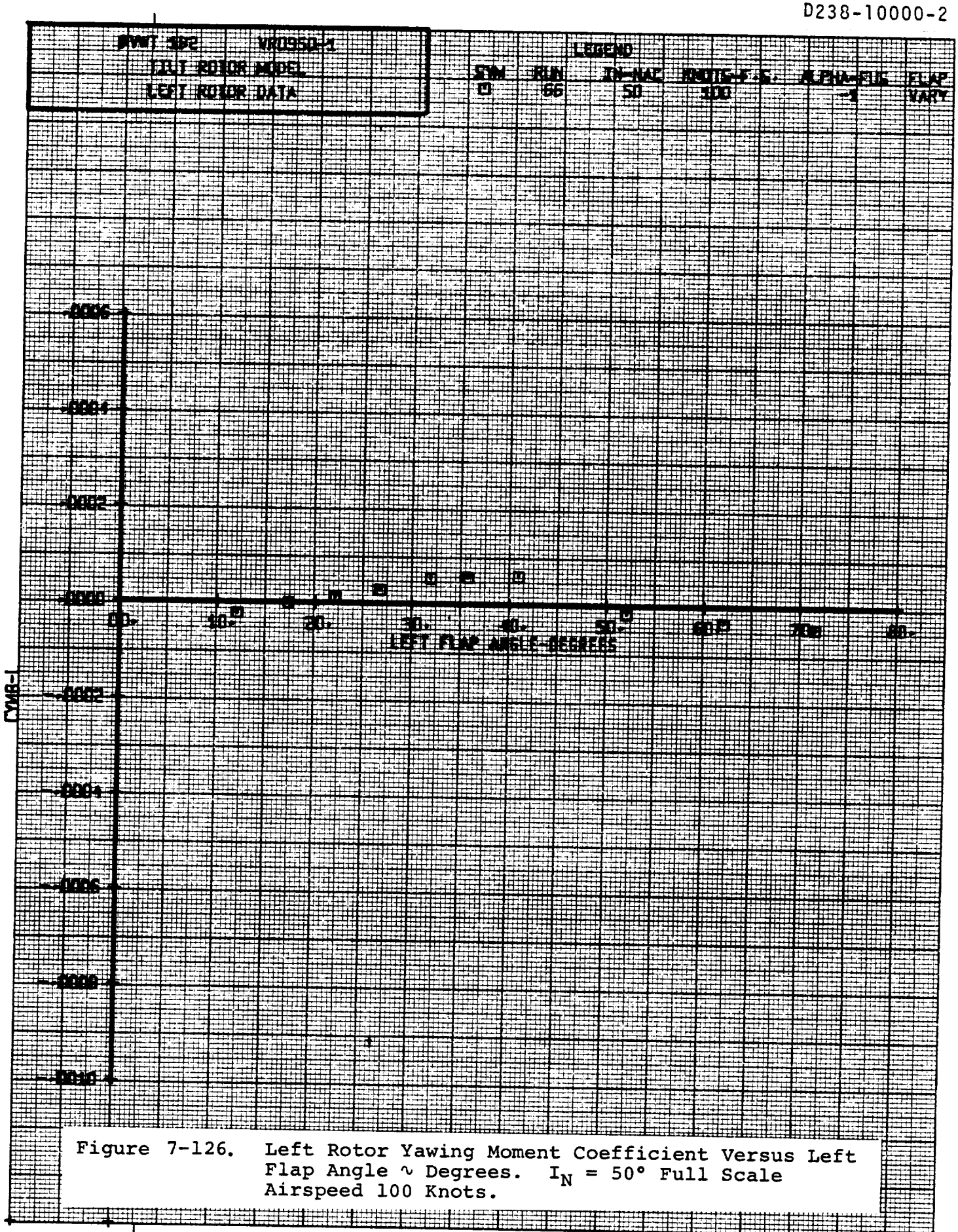


Figure 7-126. Left Rotor Yawing Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

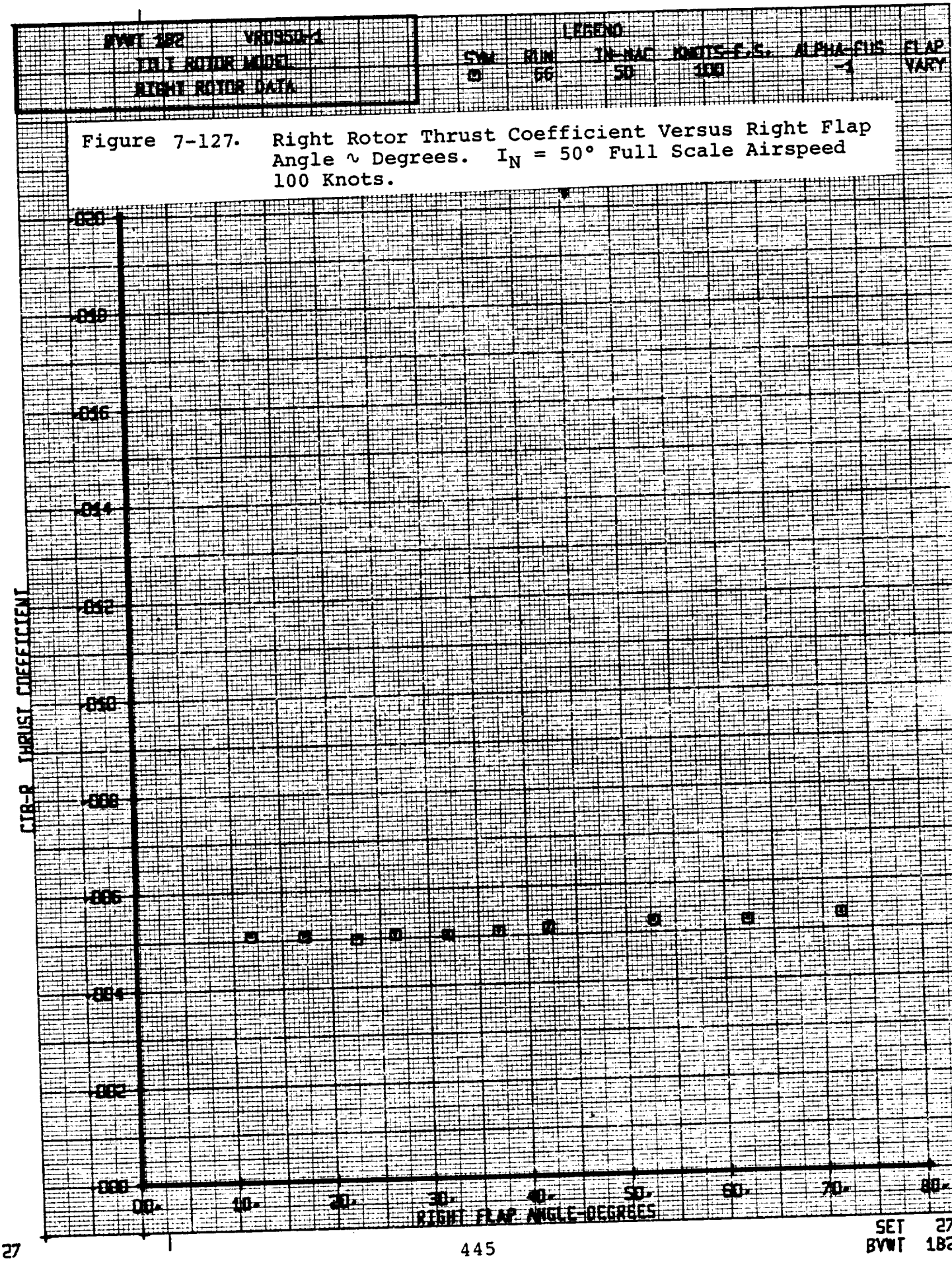


Figure 7-127. Right Rotor Thrust Coefficient Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

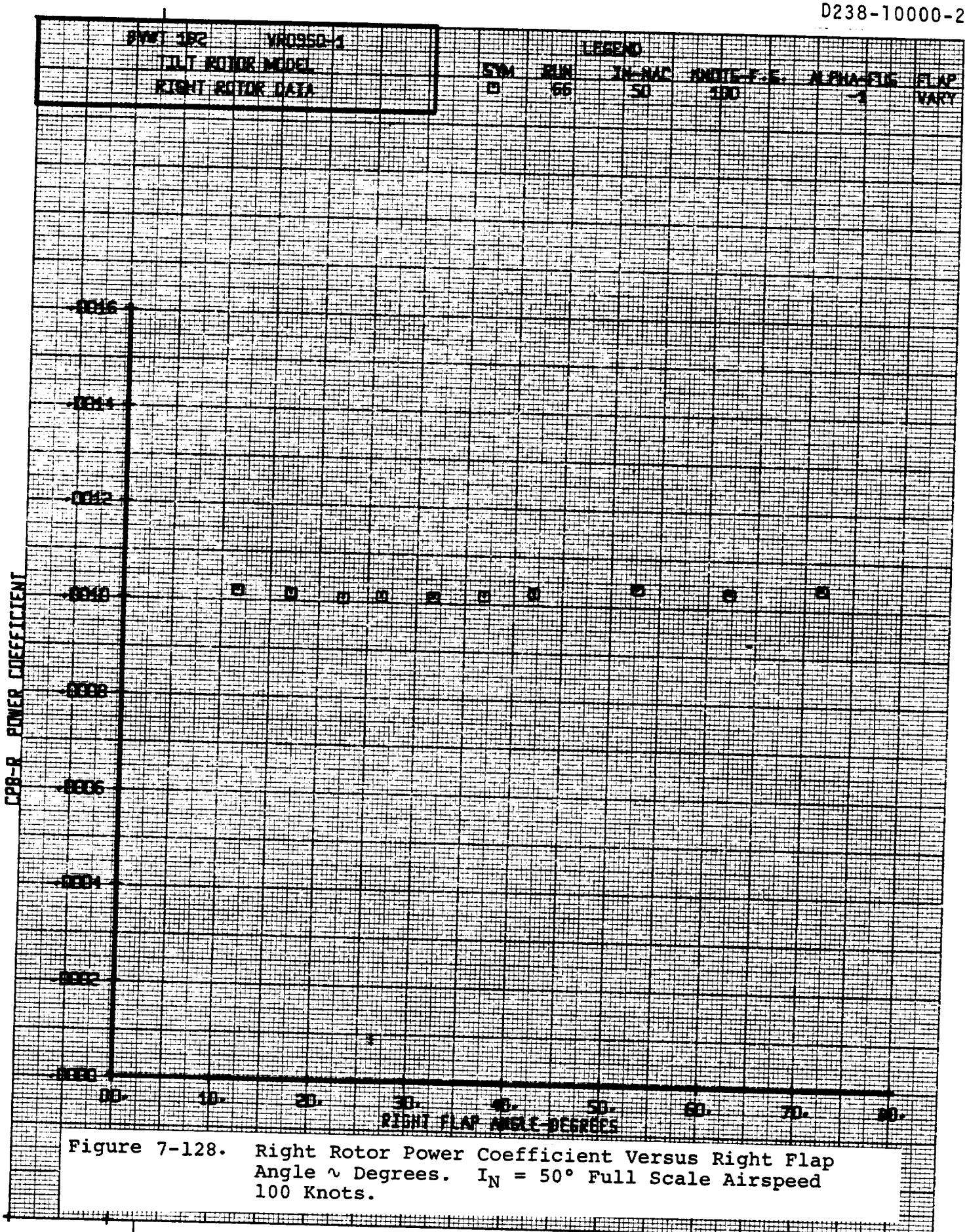


Figure 7-128. Right Rotor Power Coefficient Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

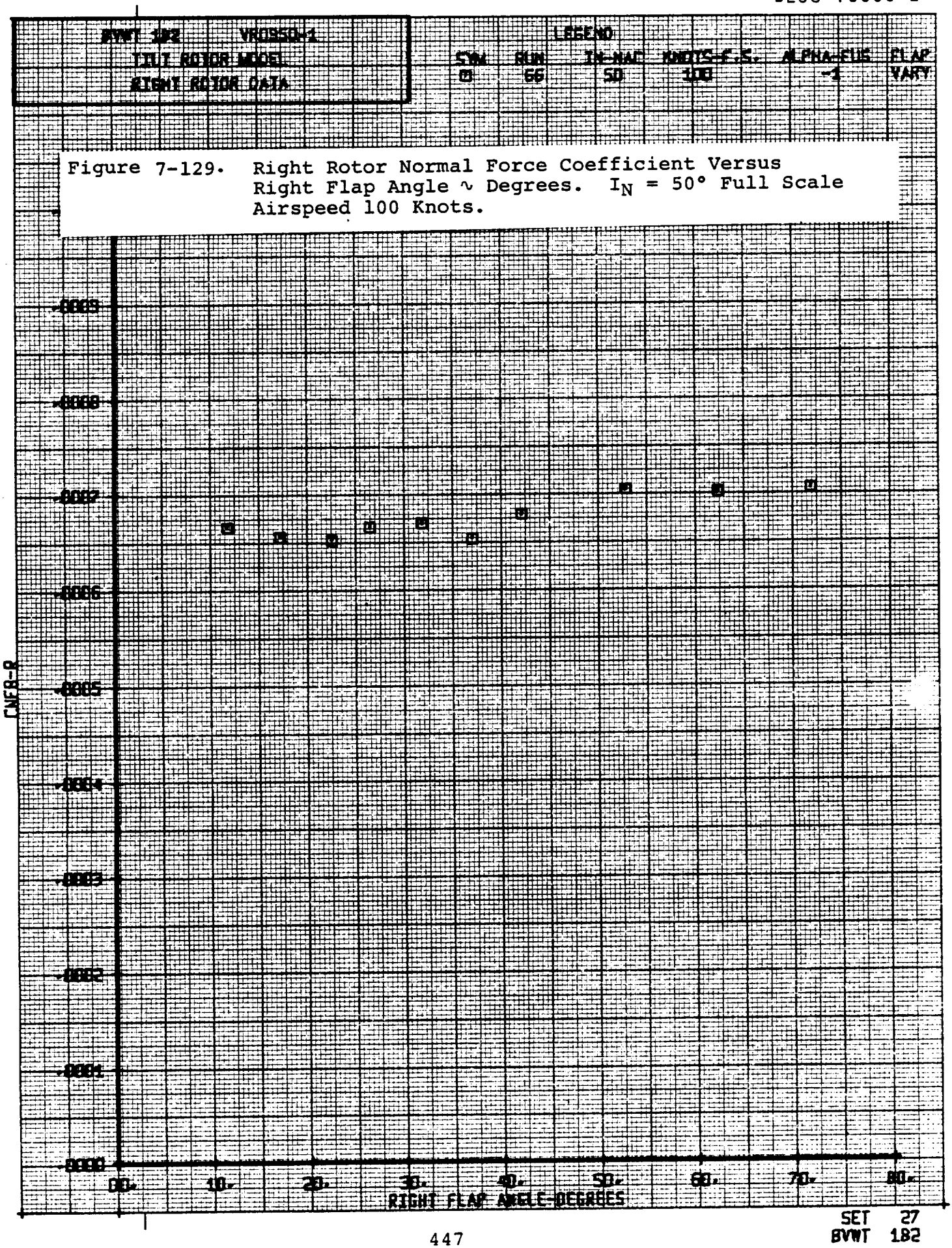


Figure 7-129. Right Rotor Normal Force Coefficient Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

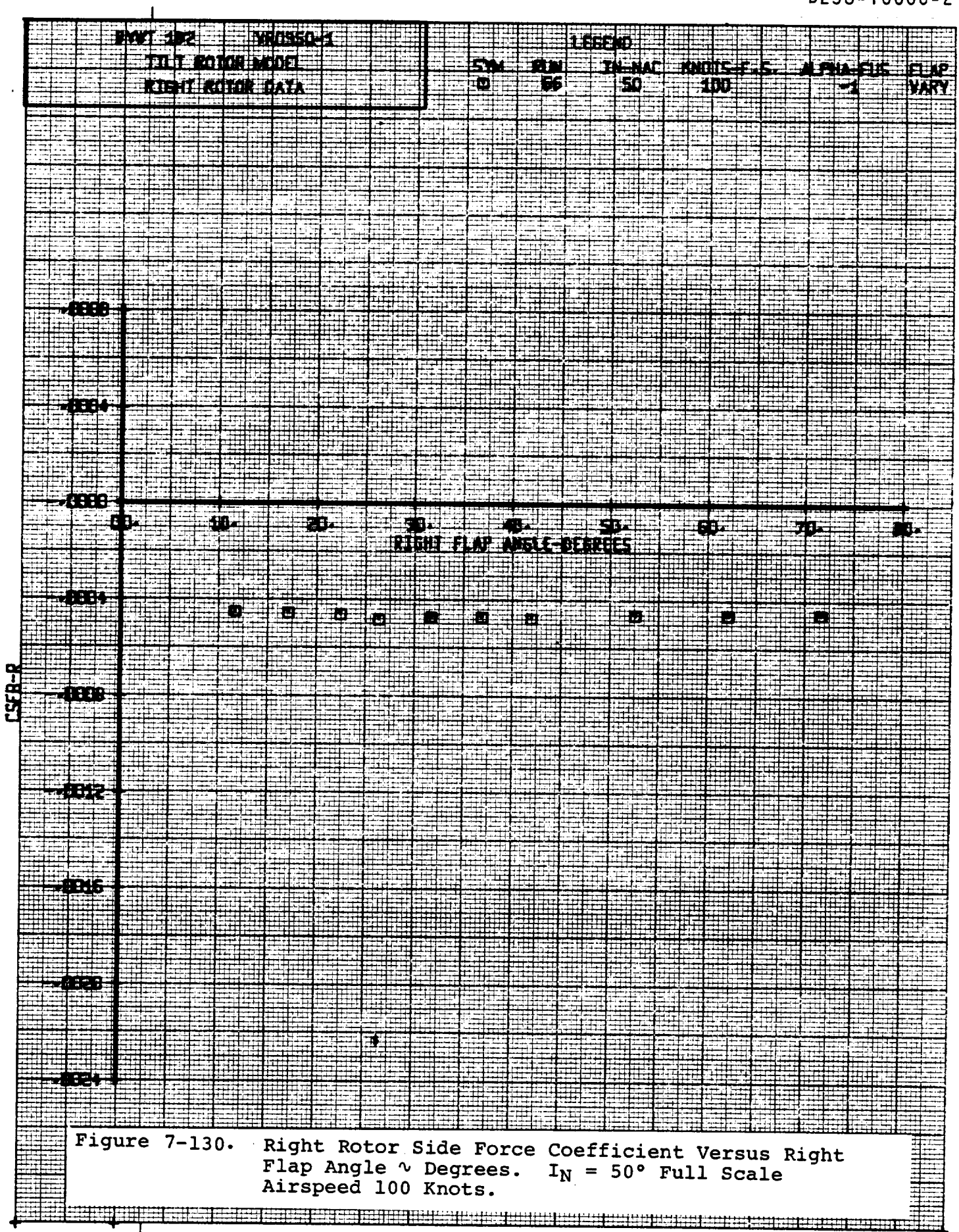


Figure 7-130. Right Rotor Side Force Coefficient Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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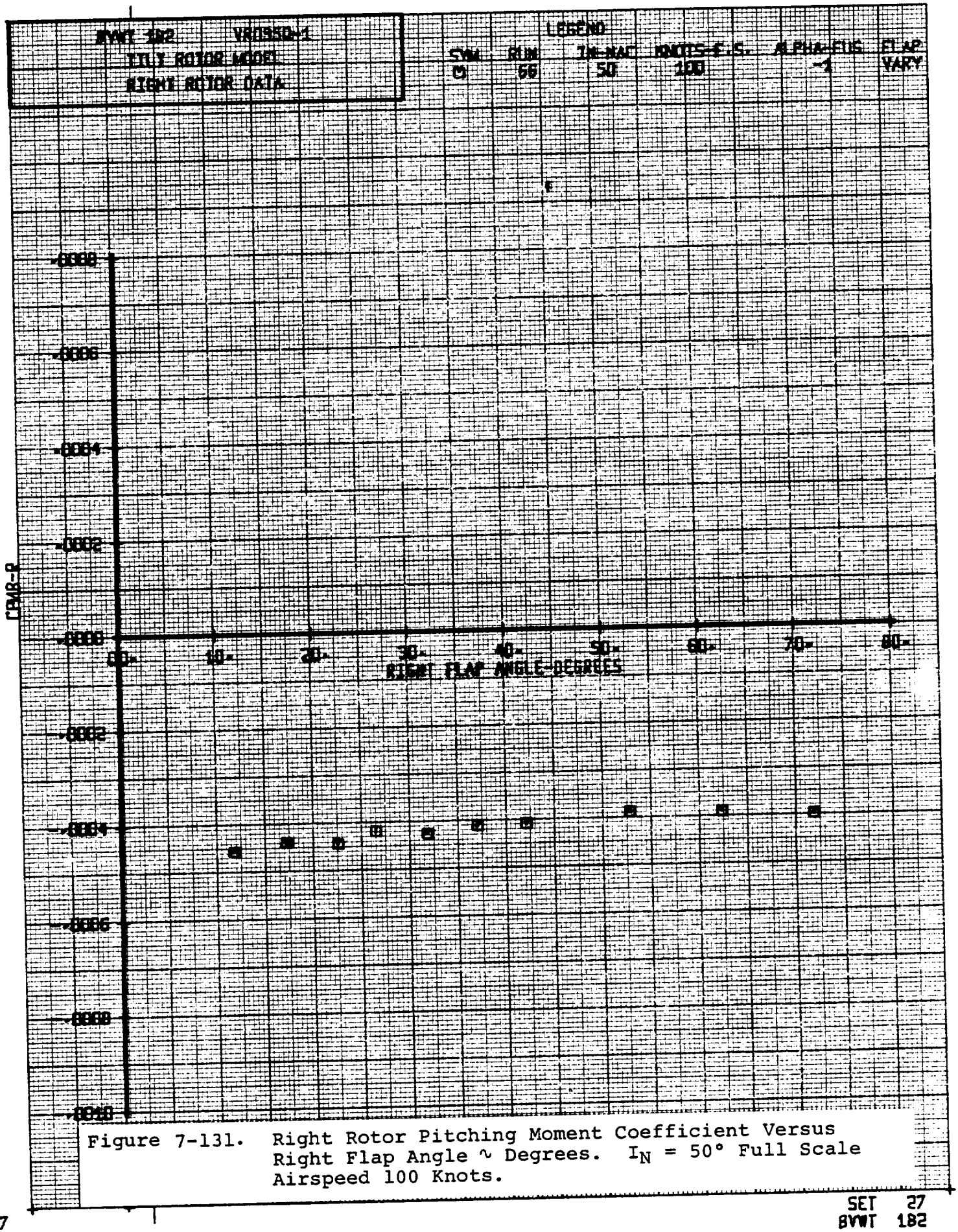


Figure 7-131. Right Rotor Pitching Moment Coefficient Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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BVWT 182

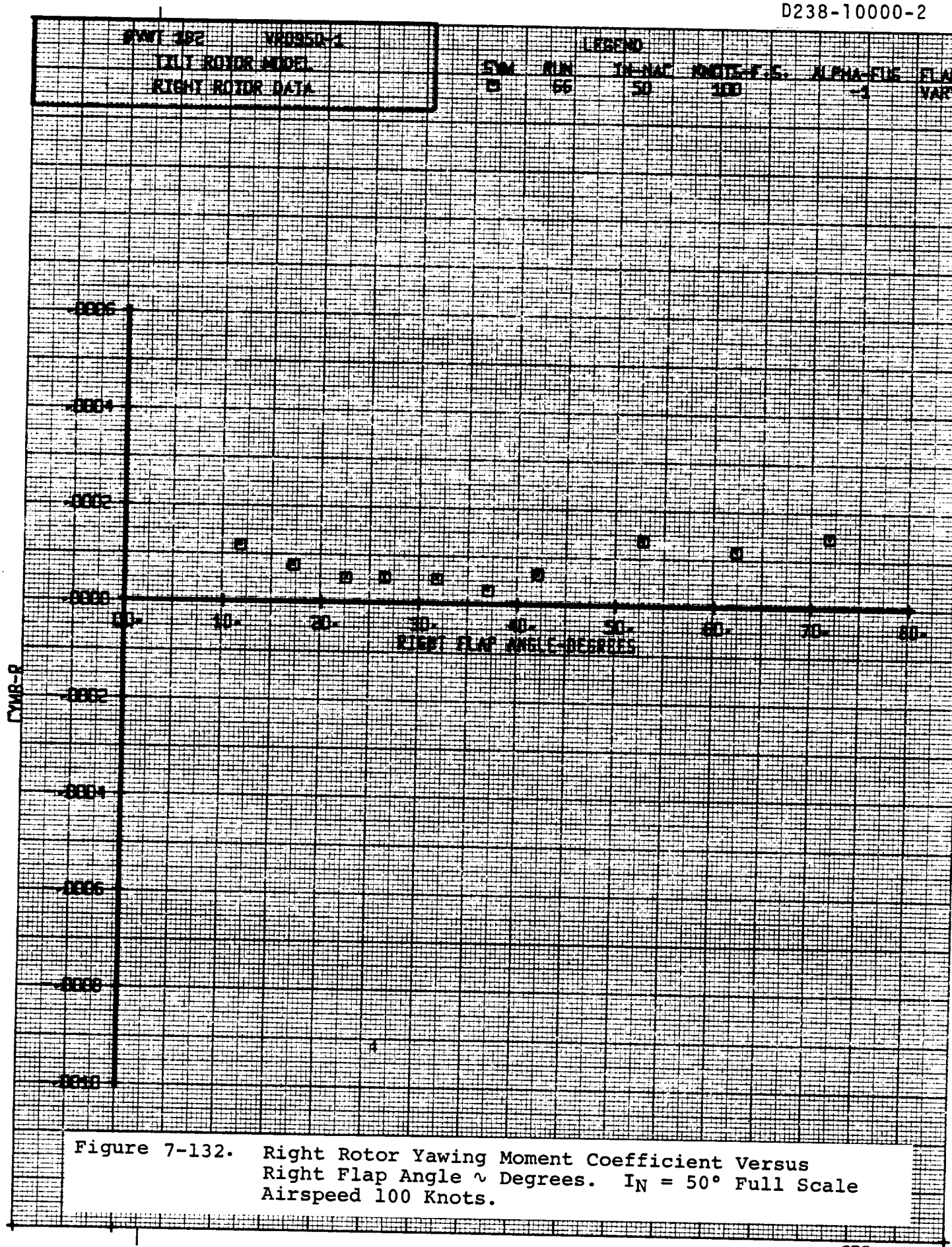


Figure 7-132. Right Rotor Yawing Moment Coefficient Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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BVWT 182

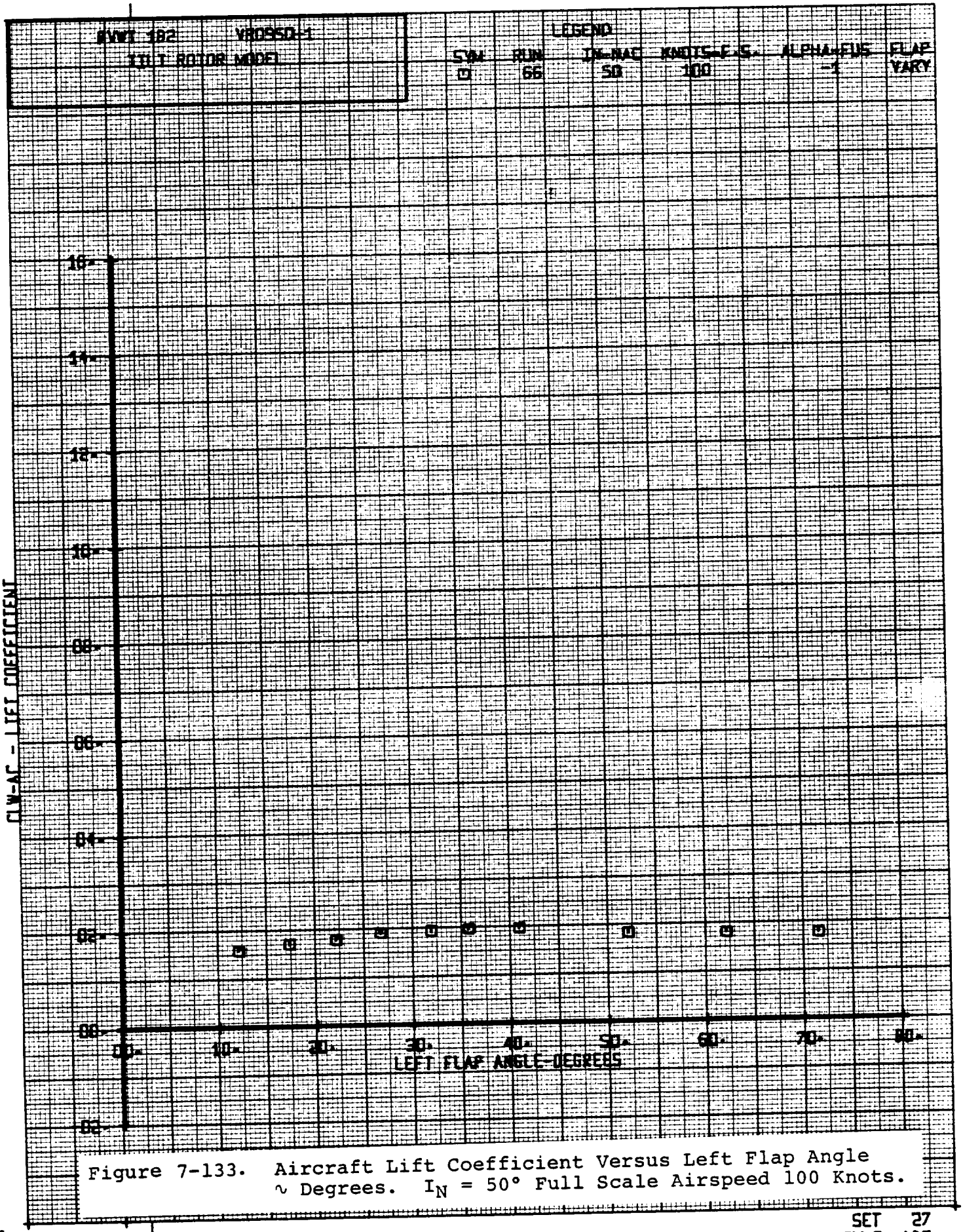


Figure 7-133. Aircraft Lift Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

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BVWT 182

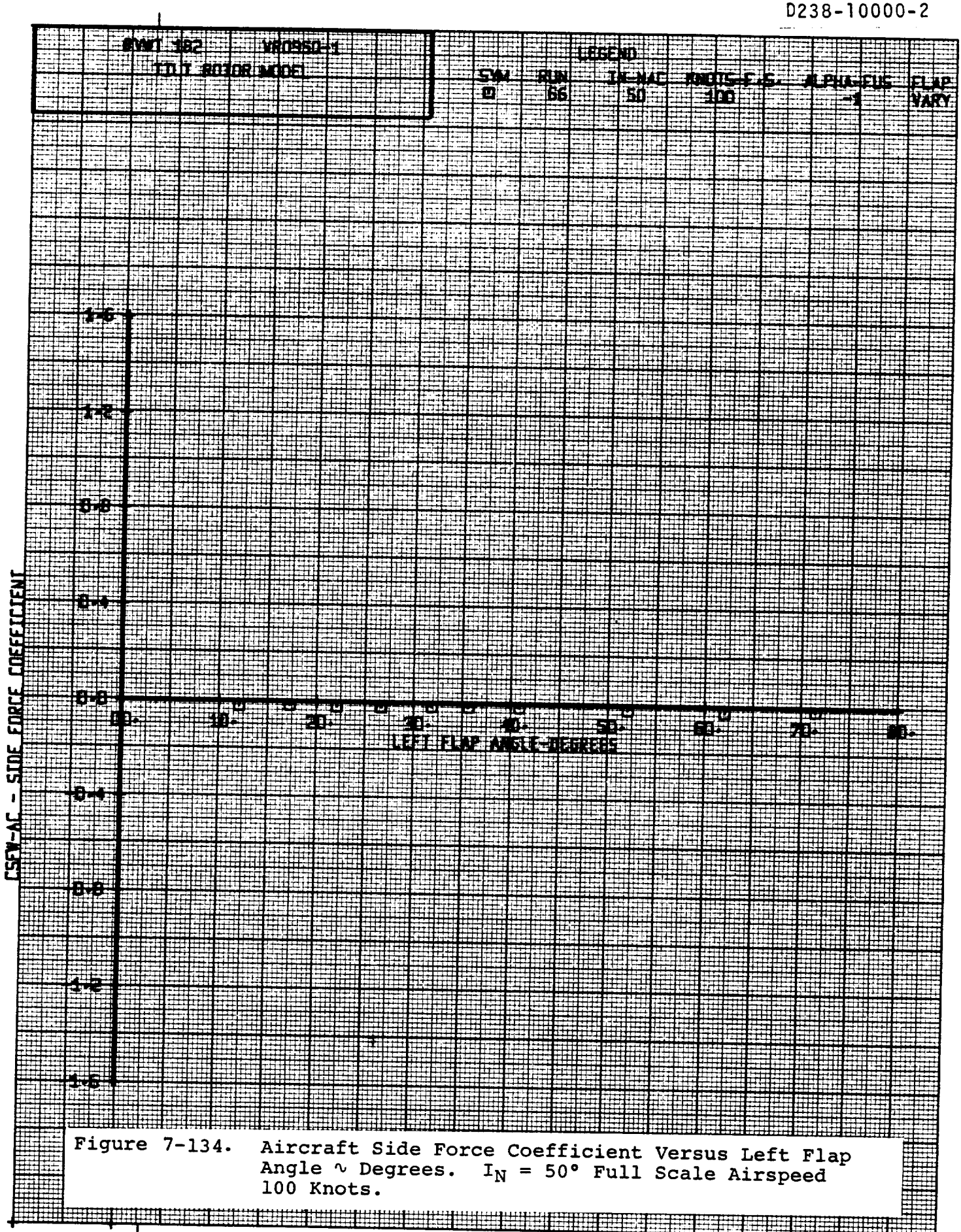


Figure 7-134. Aircraft Side Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

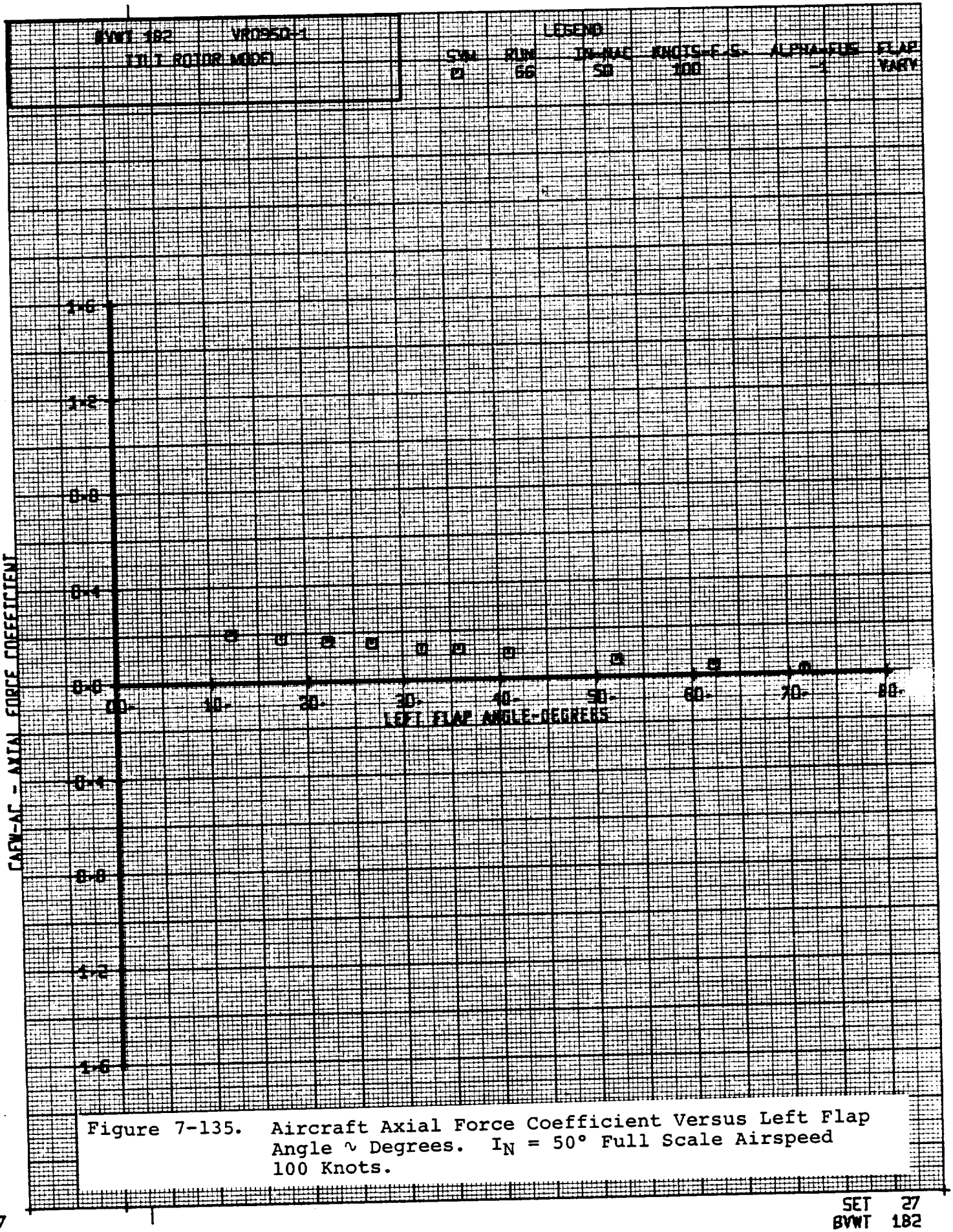


Figure 7-135. Aircraft Axial Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

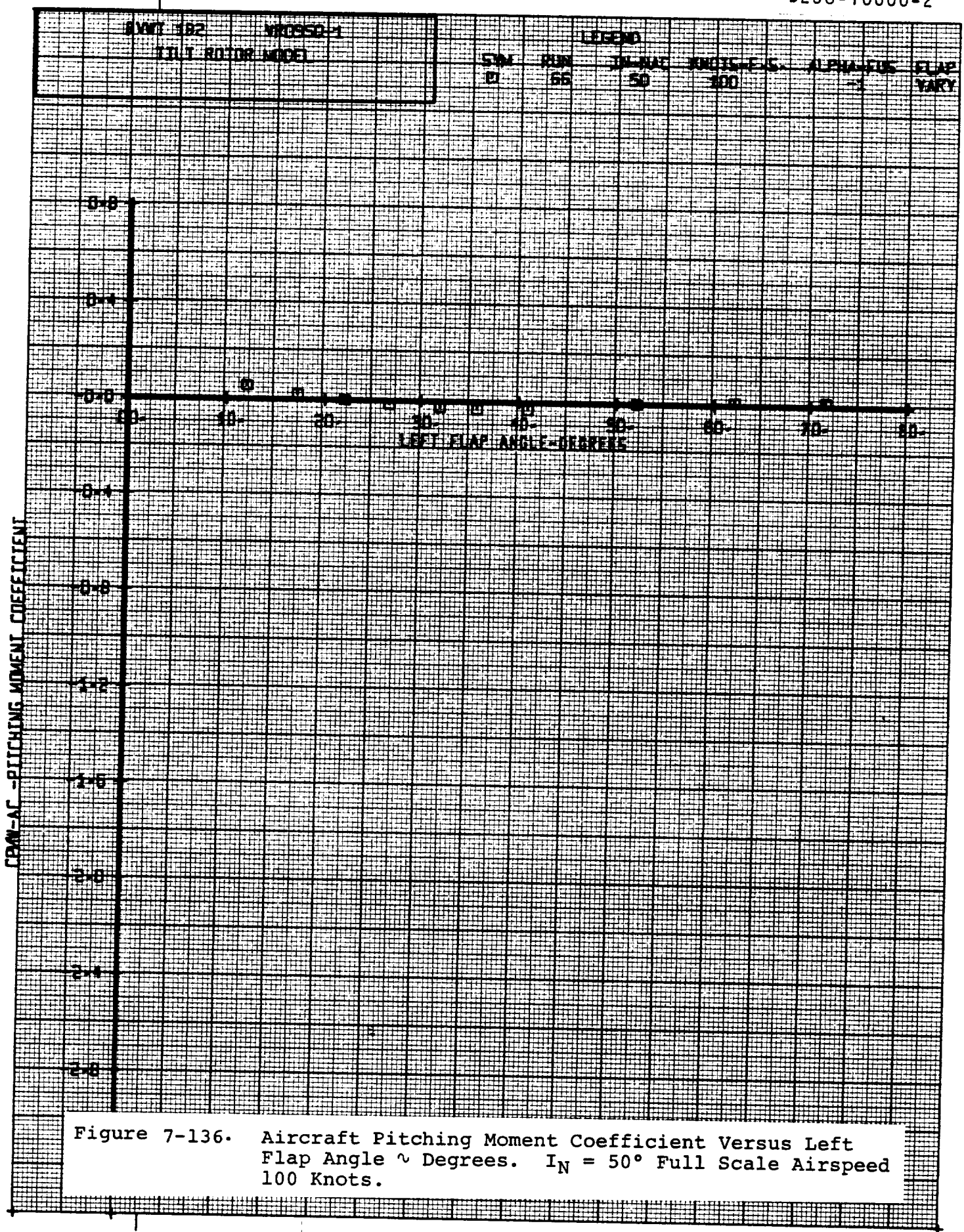


Figure 7-136. Aircraft Pitching Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

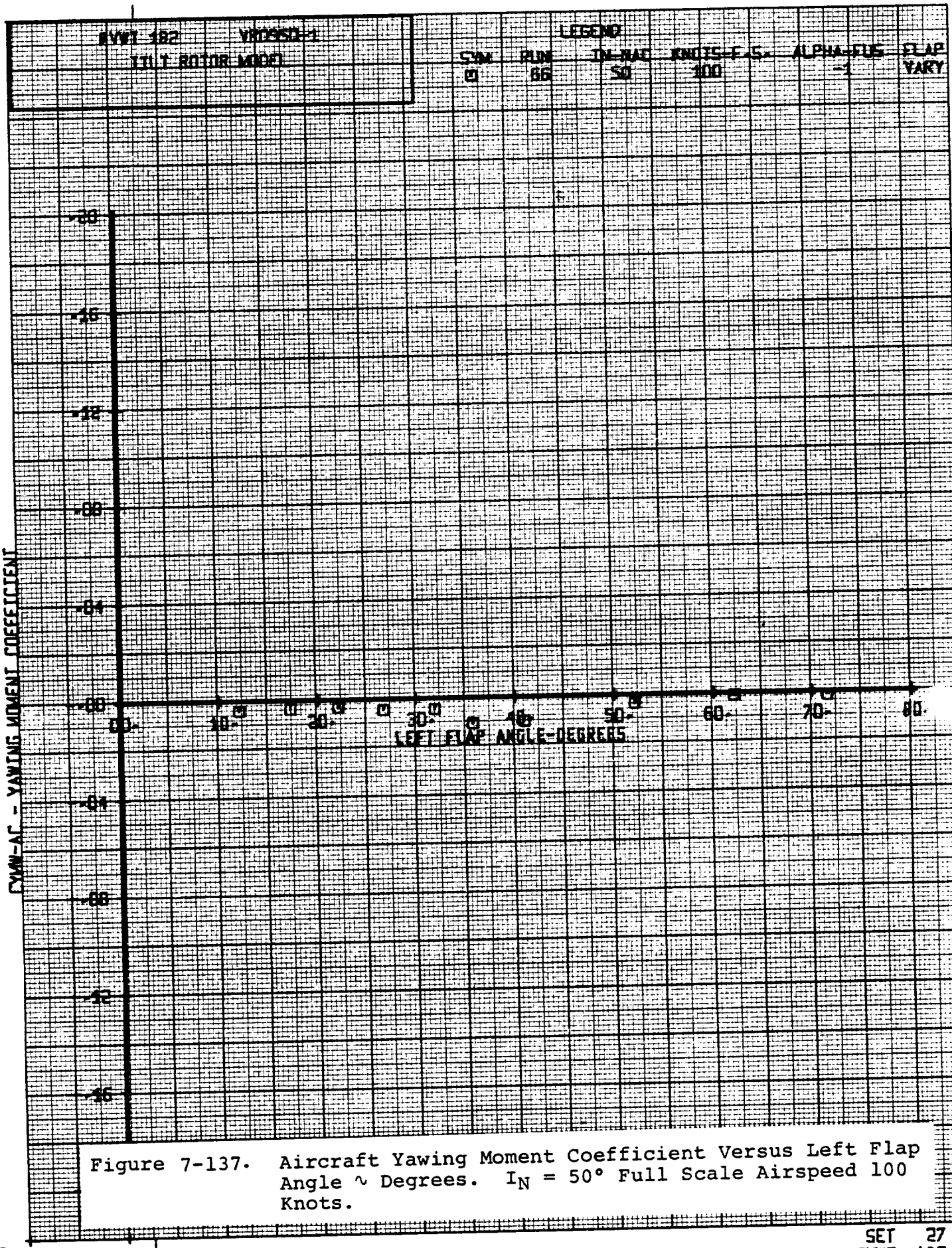


Figure 7-137. Aircraft Yawing Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

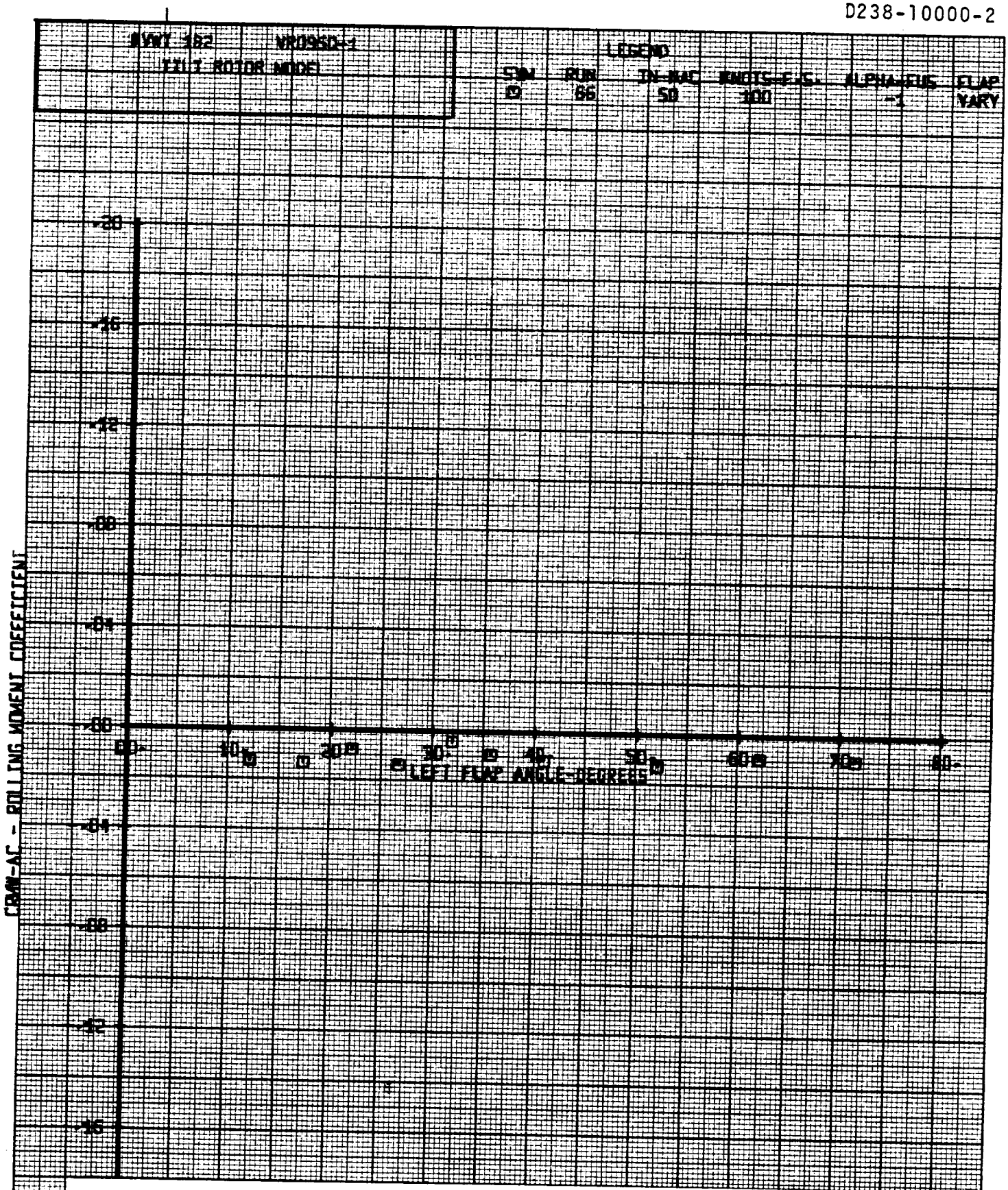


Figure 7-138. Aircraft Rolling Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

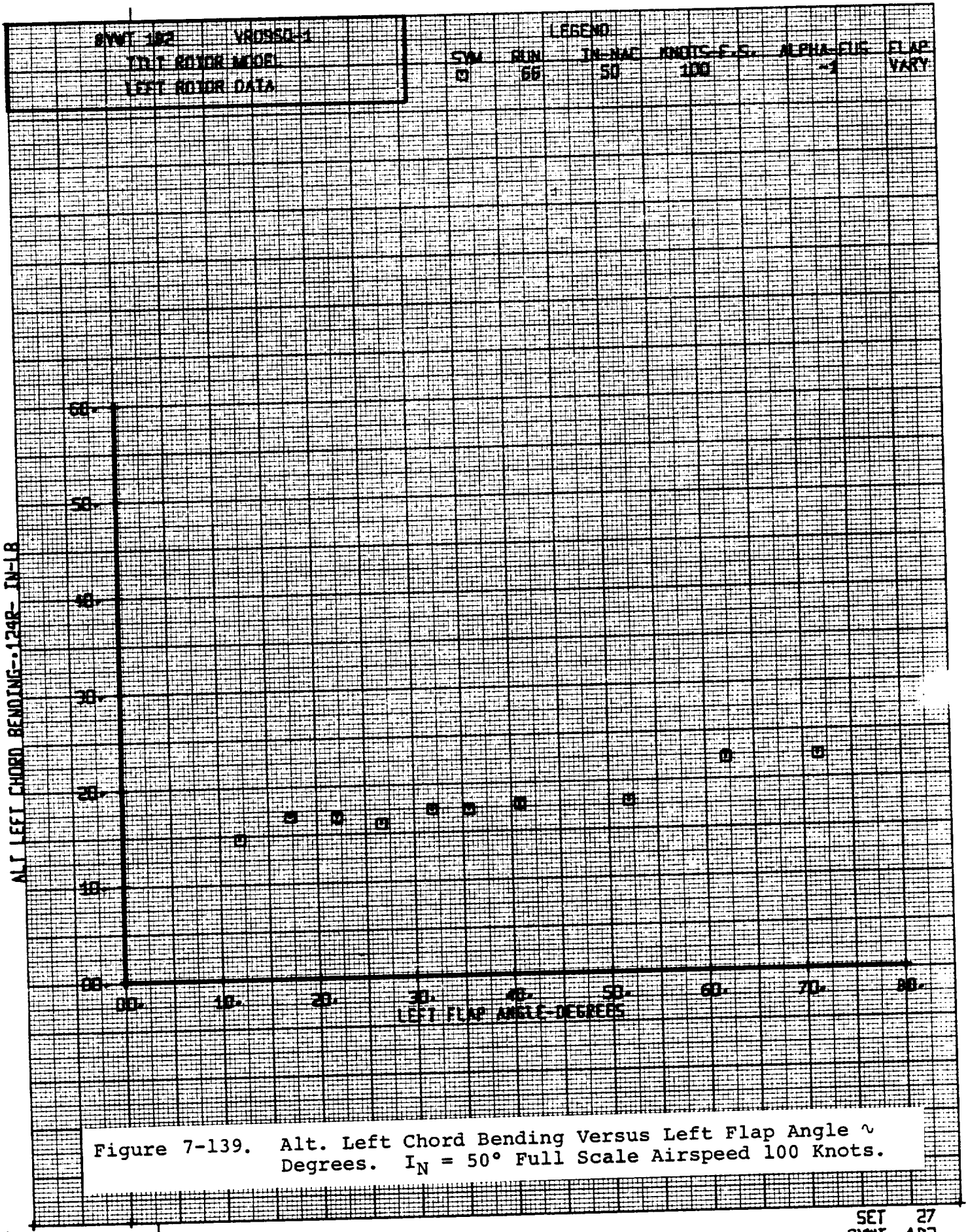


Figure 7-139. Alt. Left Chord Bending Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

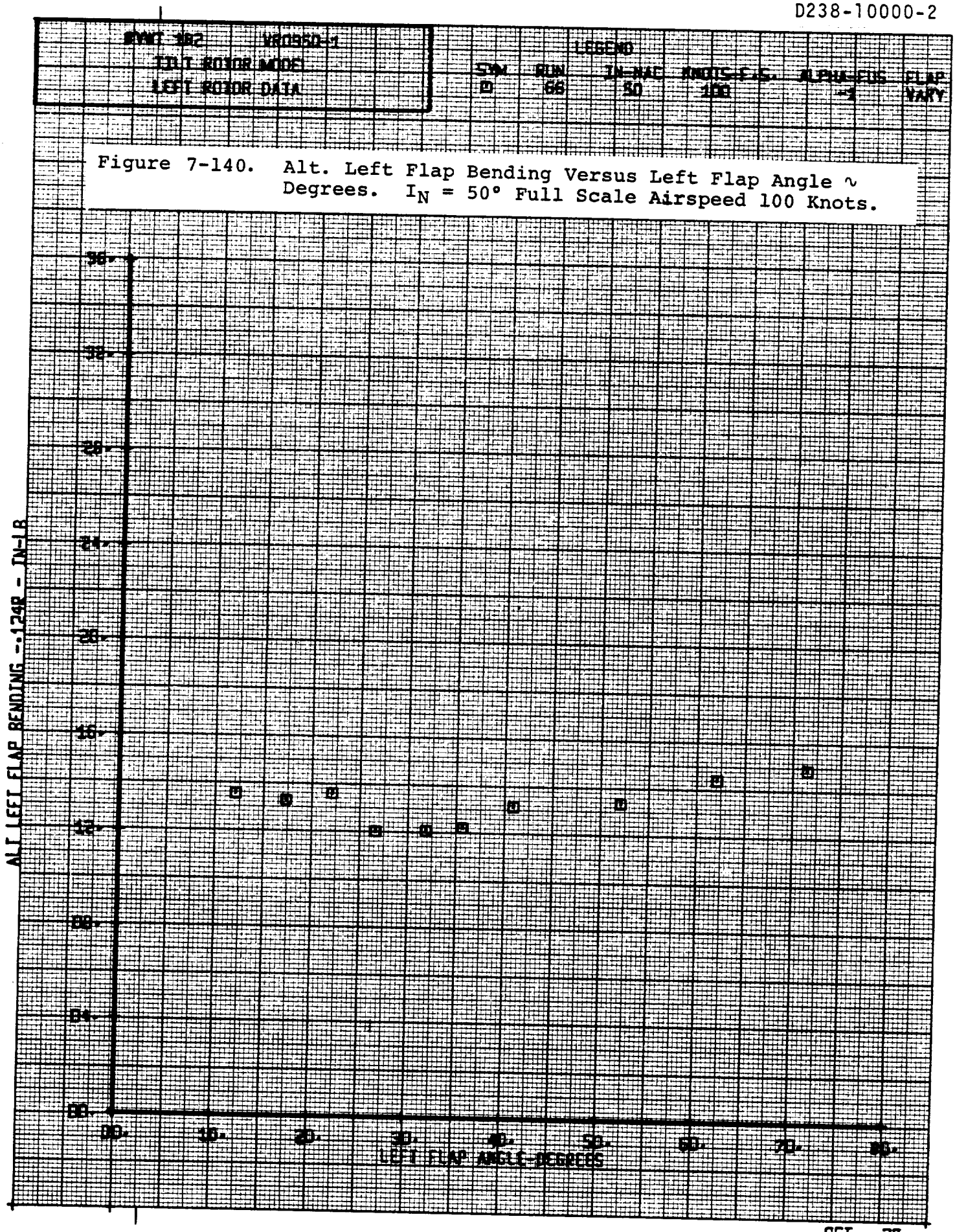


Figure 7-140. Alt. Left Flap Bending Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

27
182

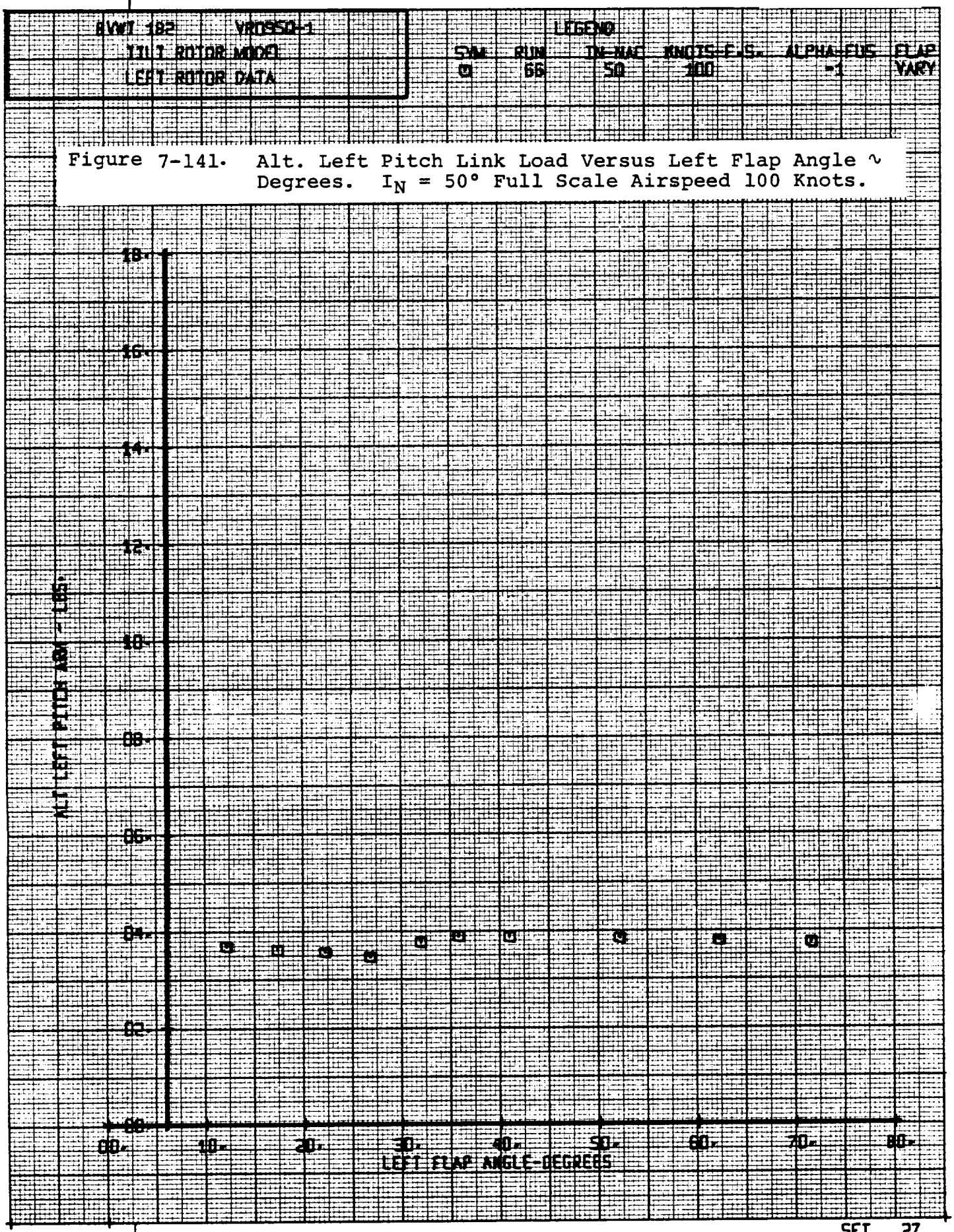


Figure 7-141. Alt. Left Pitch Link Load Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

SET 27
BWT 182

SET 27
BWT 182

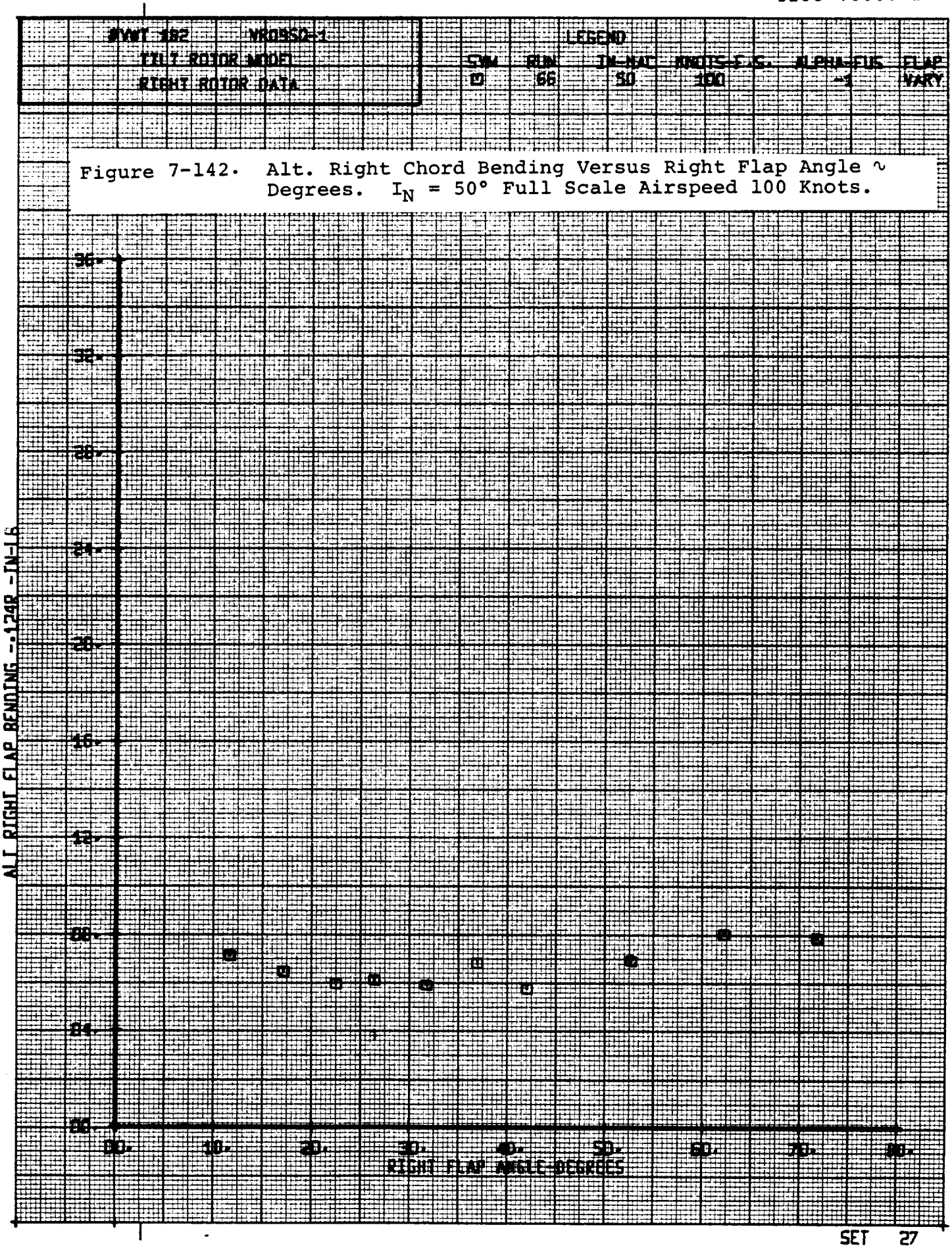


Figure 7-142. Alt. Right Chord Bending Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

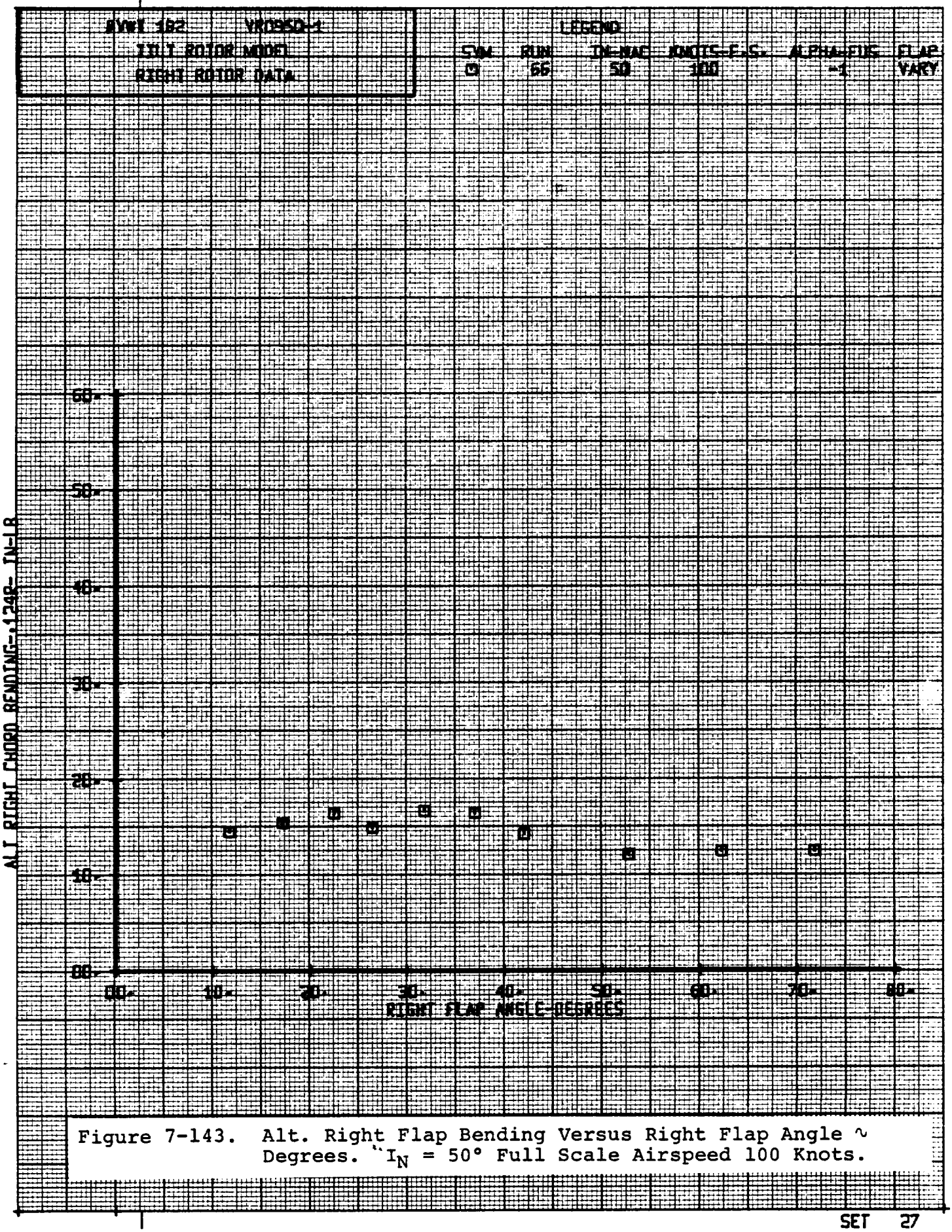


Figure 7-143. Alt. Right Flap Bending Versus Right Flap Angle ∿ Degrees. ``I_N = 50° Full Scale Airspeed 100 Knots.

ET 27
W 182

SET 27
BVWT 182

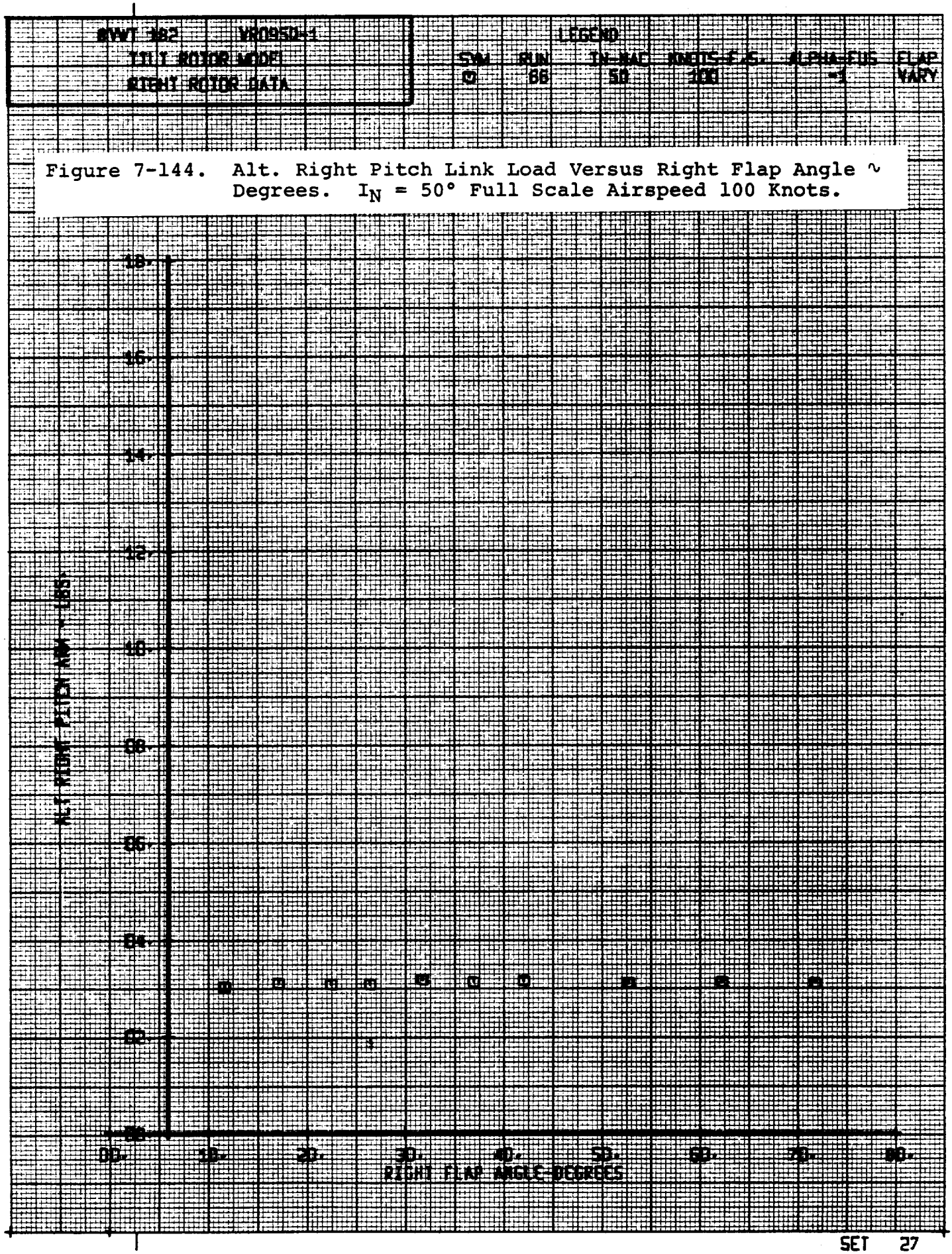


Figure 7-144. Alt. Right Pitch Link Load Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 100 Knots.

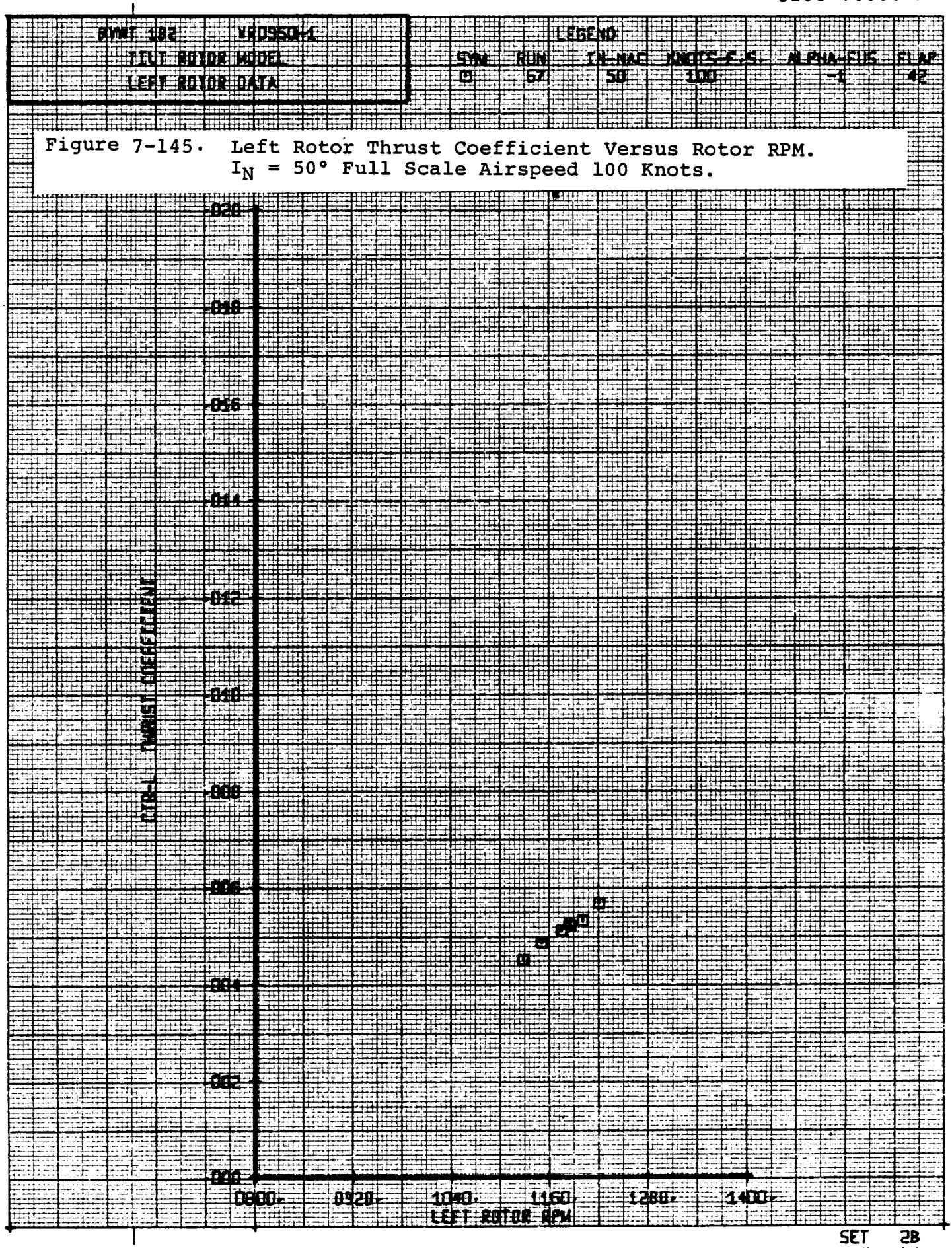


Figure 7-145. Left Rotor Thrust Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

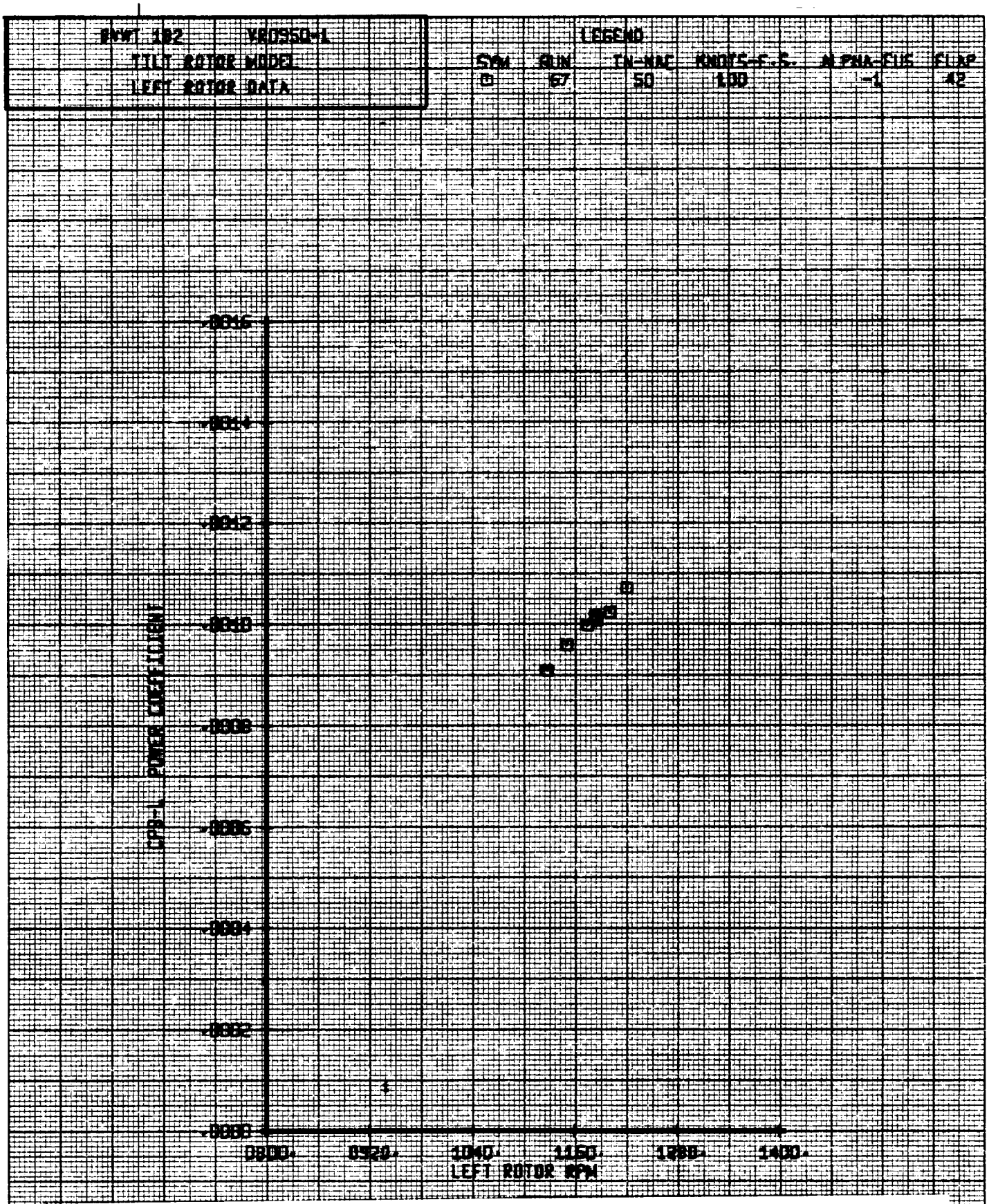


Figure 7-146. Left Rotor Power Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

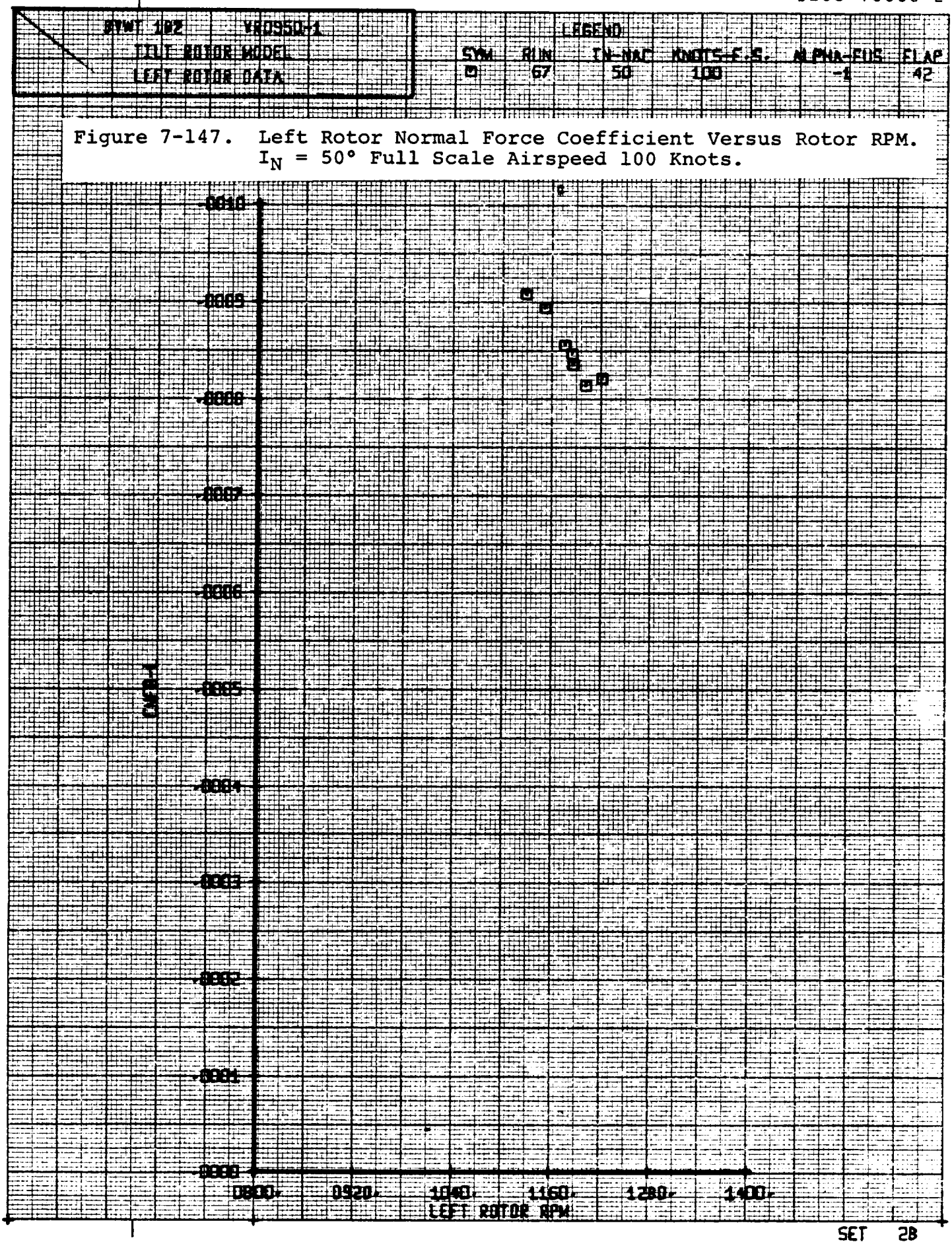


Figure 7-147. Left Rotor Normal Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

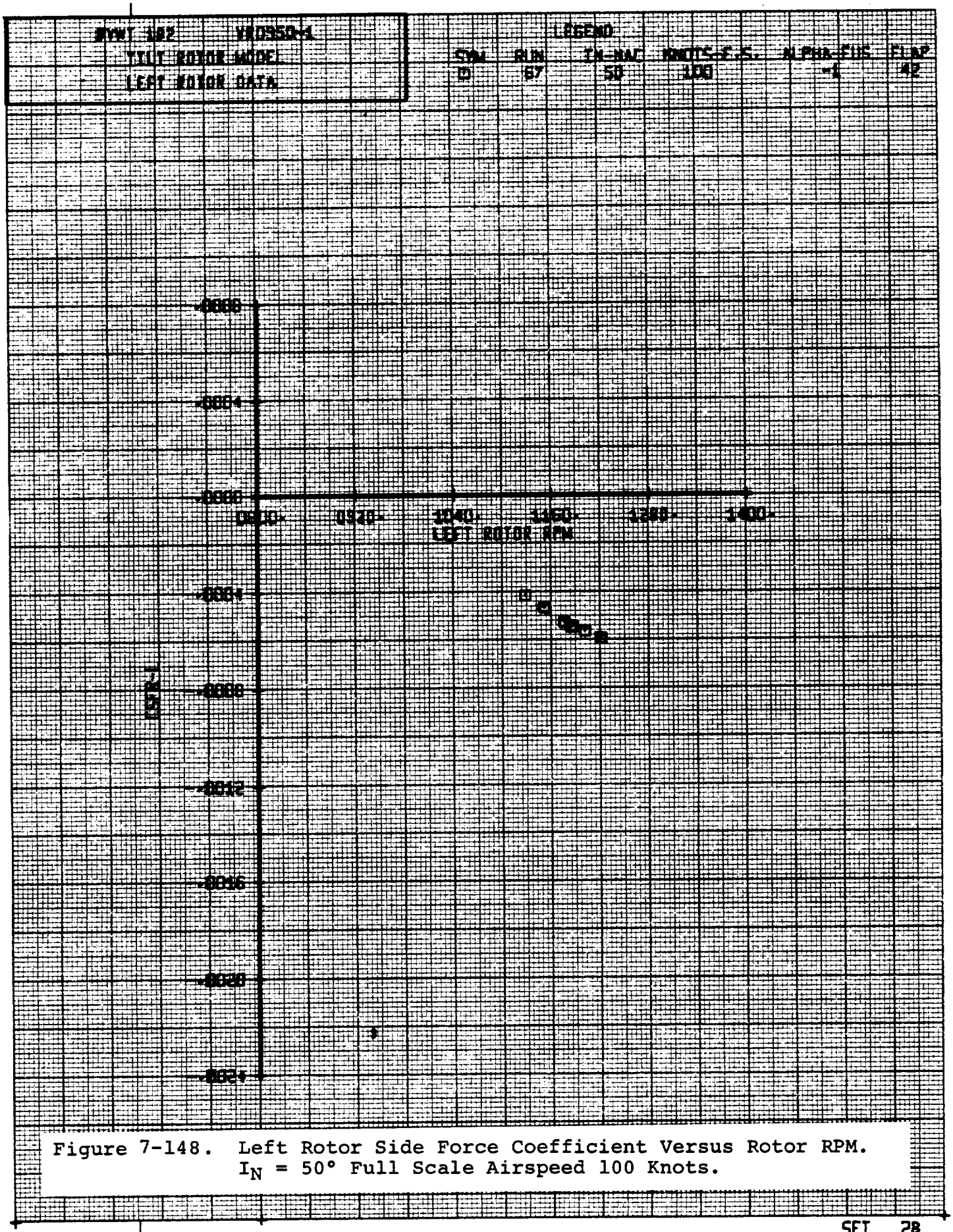


Figure 7-148. Left Rotor Side Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

SET 28
BVWT 182

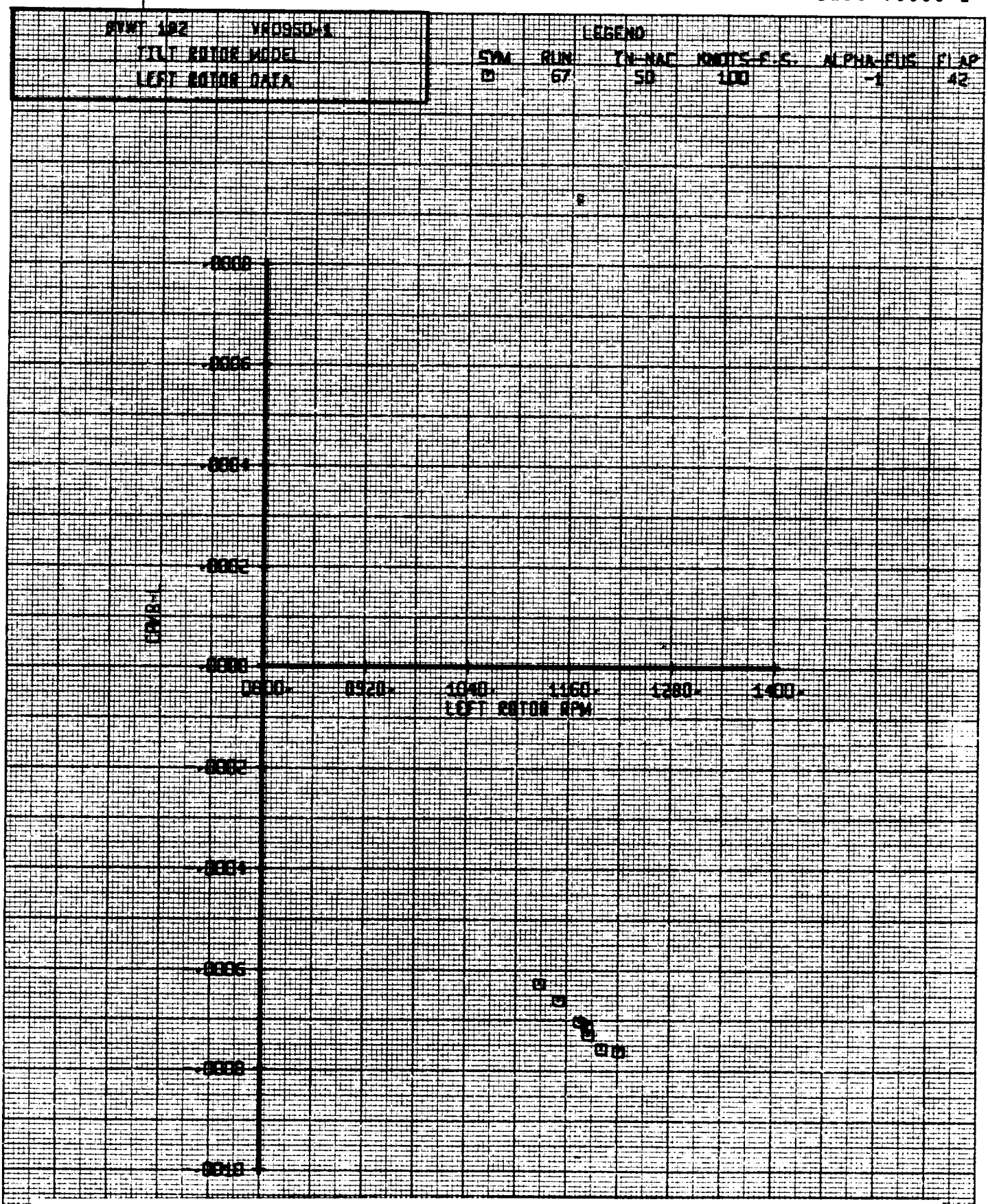


Figure 7-149. Left Rotor Pitching Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

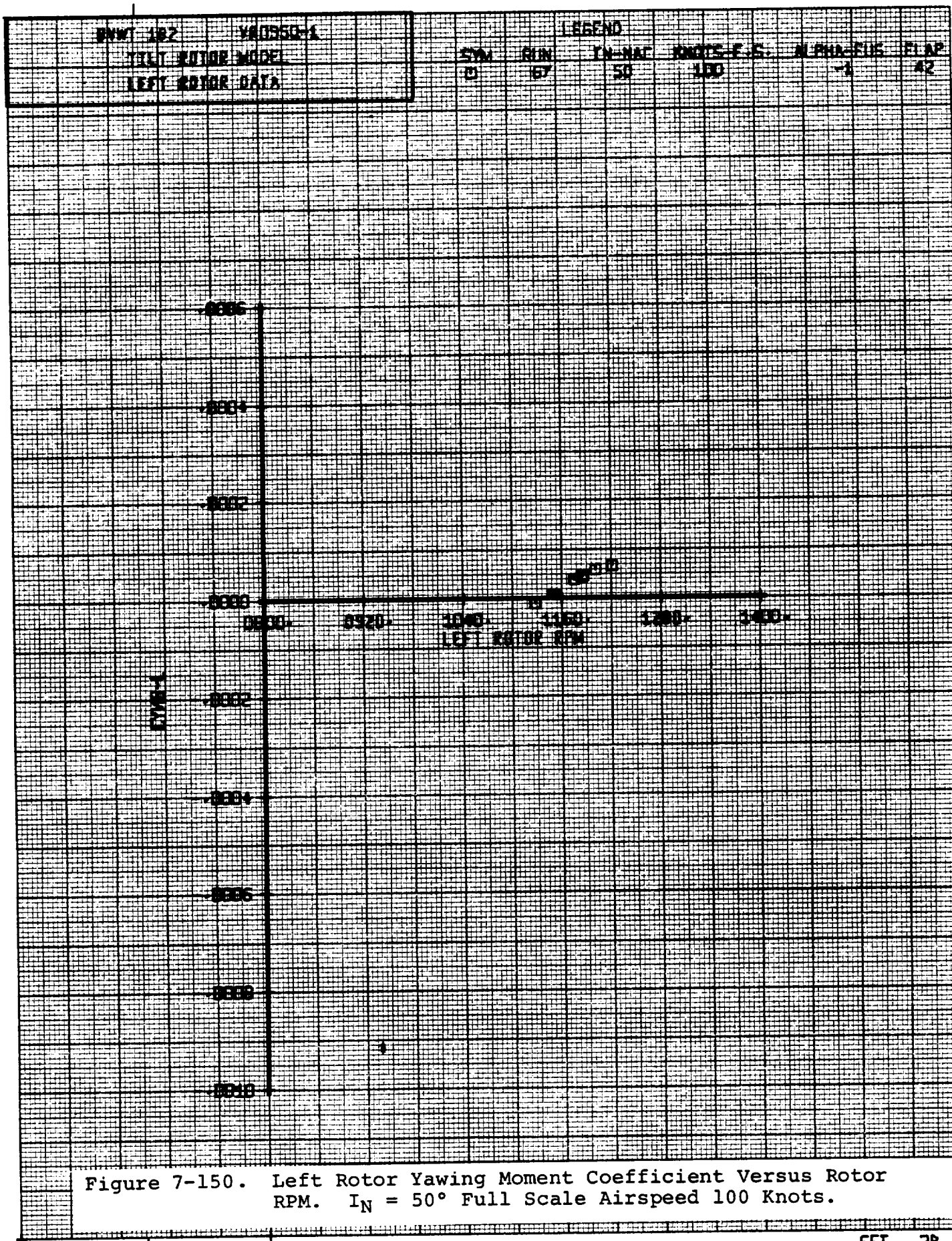


Figure 7-150. Left Rotor Yawing Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

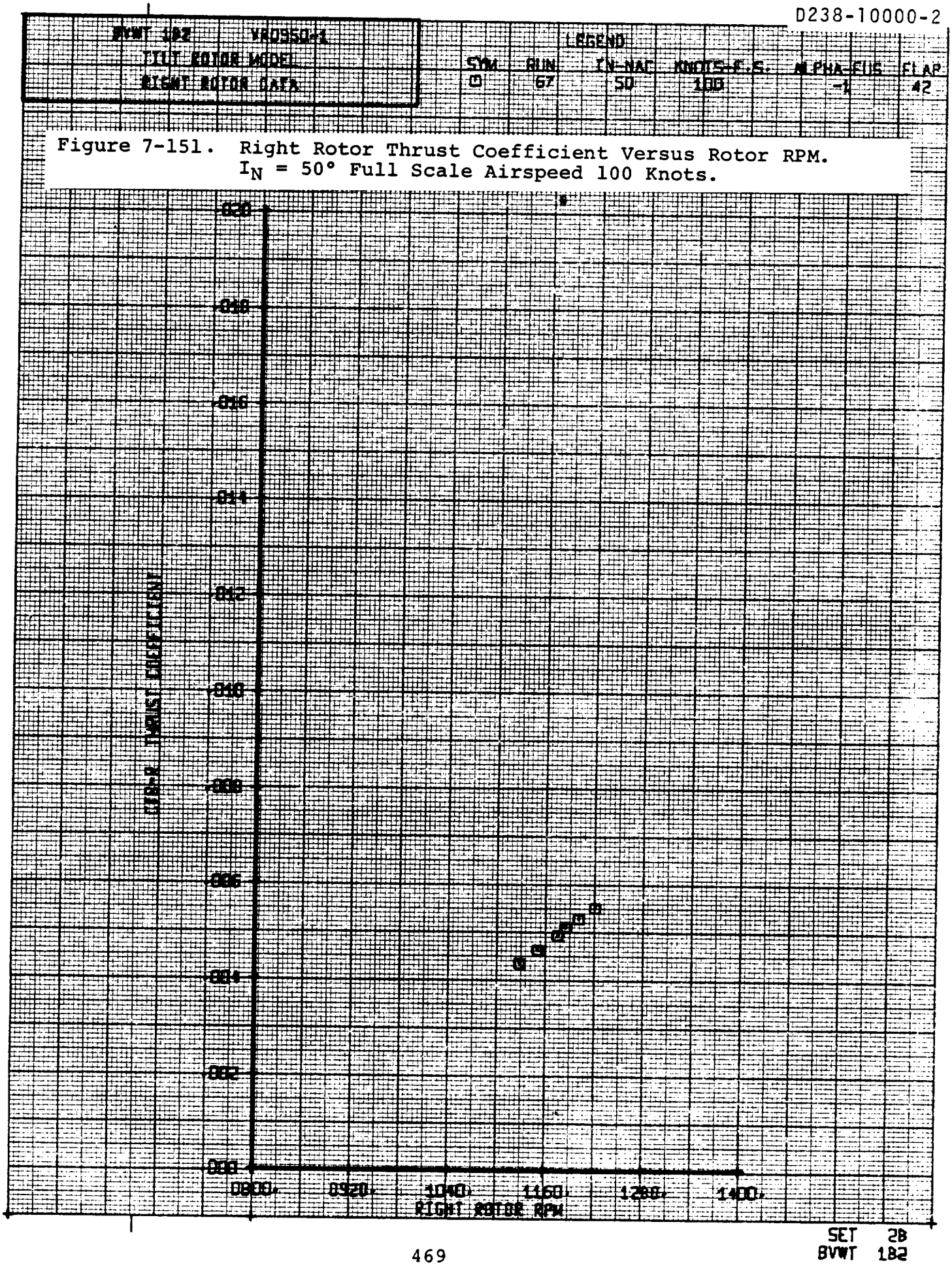


Figure 7-151. Right Rotor Thrust Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

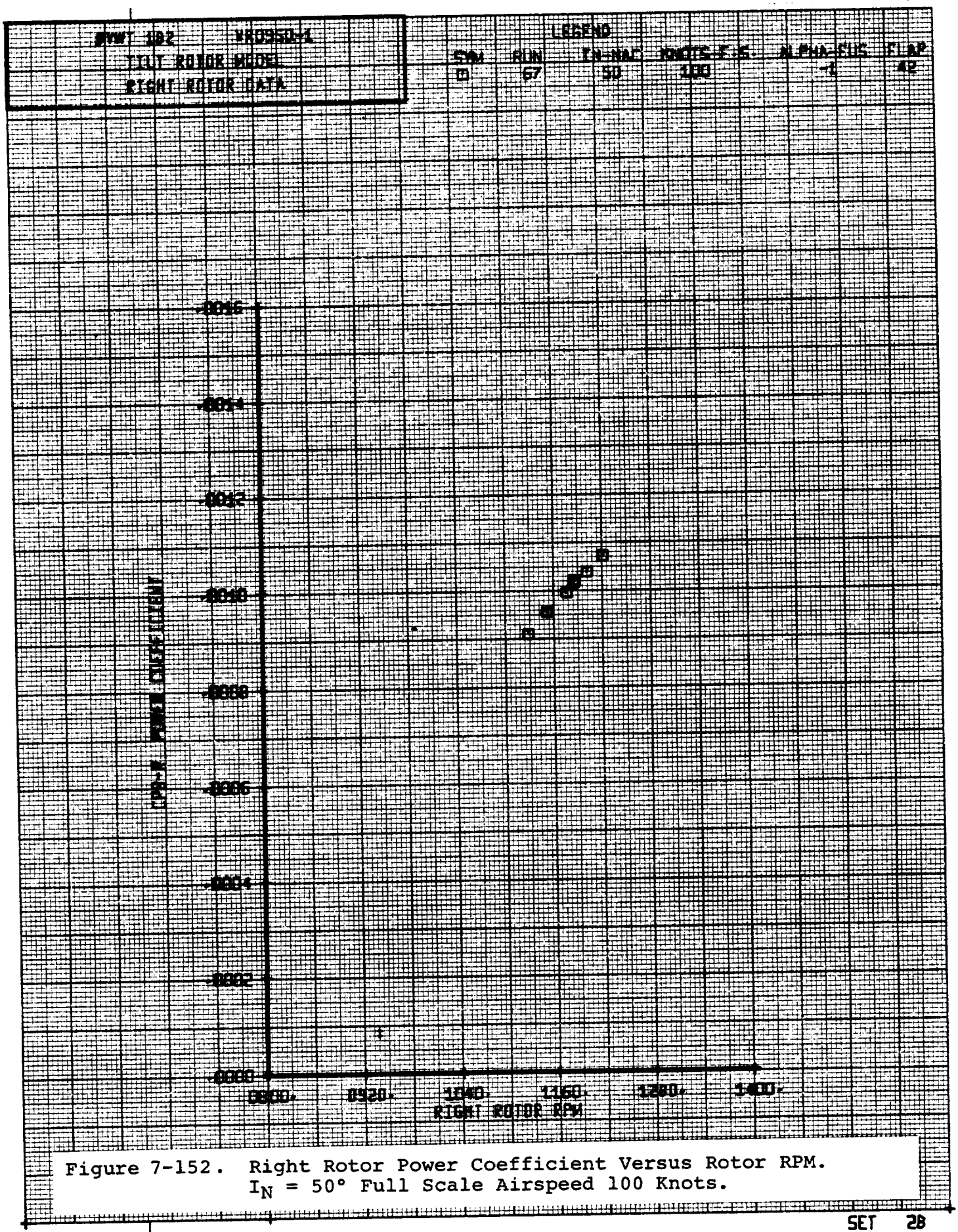


Figure 7-152. Right Rotor Power Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

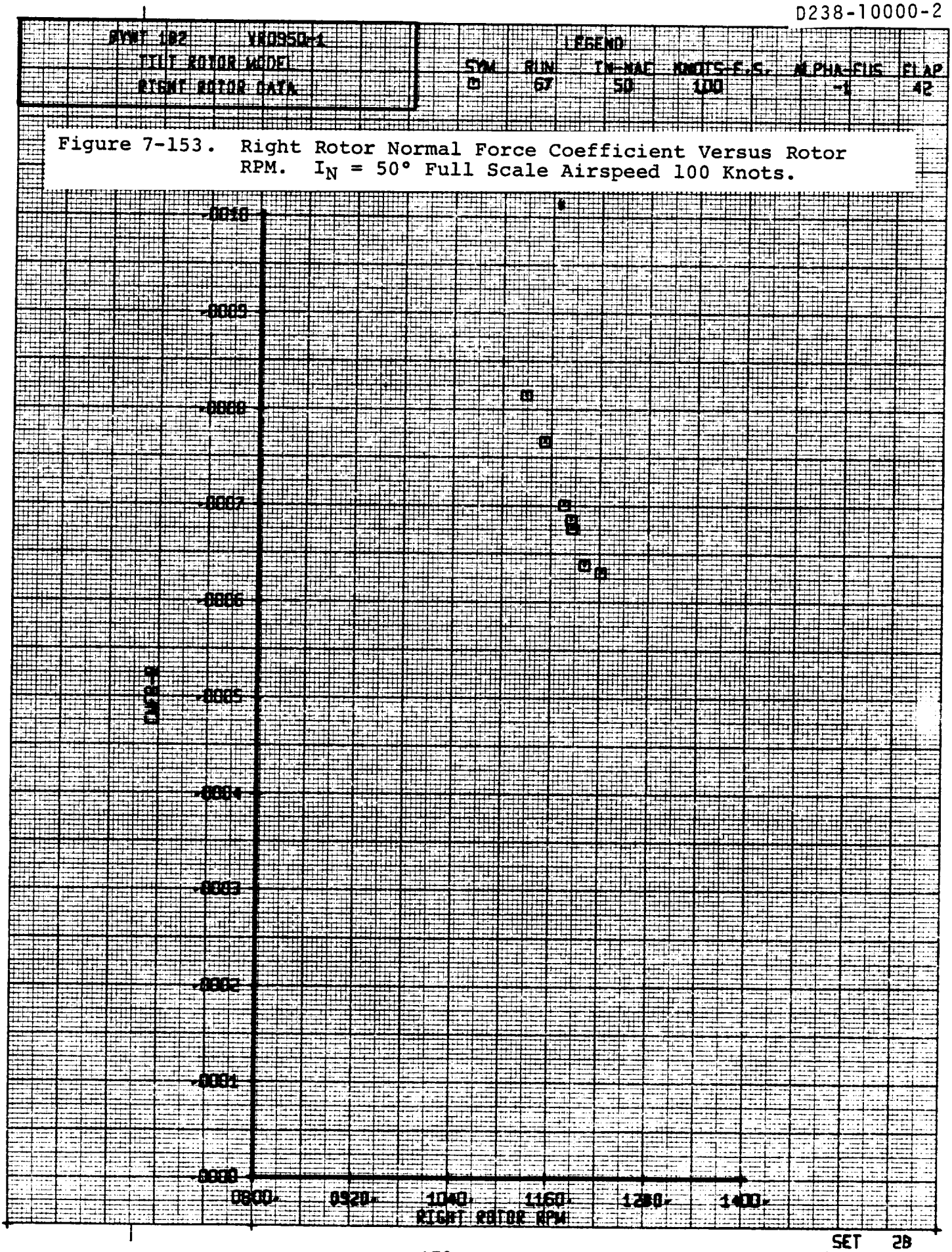


Figure 7-153. Right Rotor Normal Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

ET 28
N 182

SET 28
BVWT 182

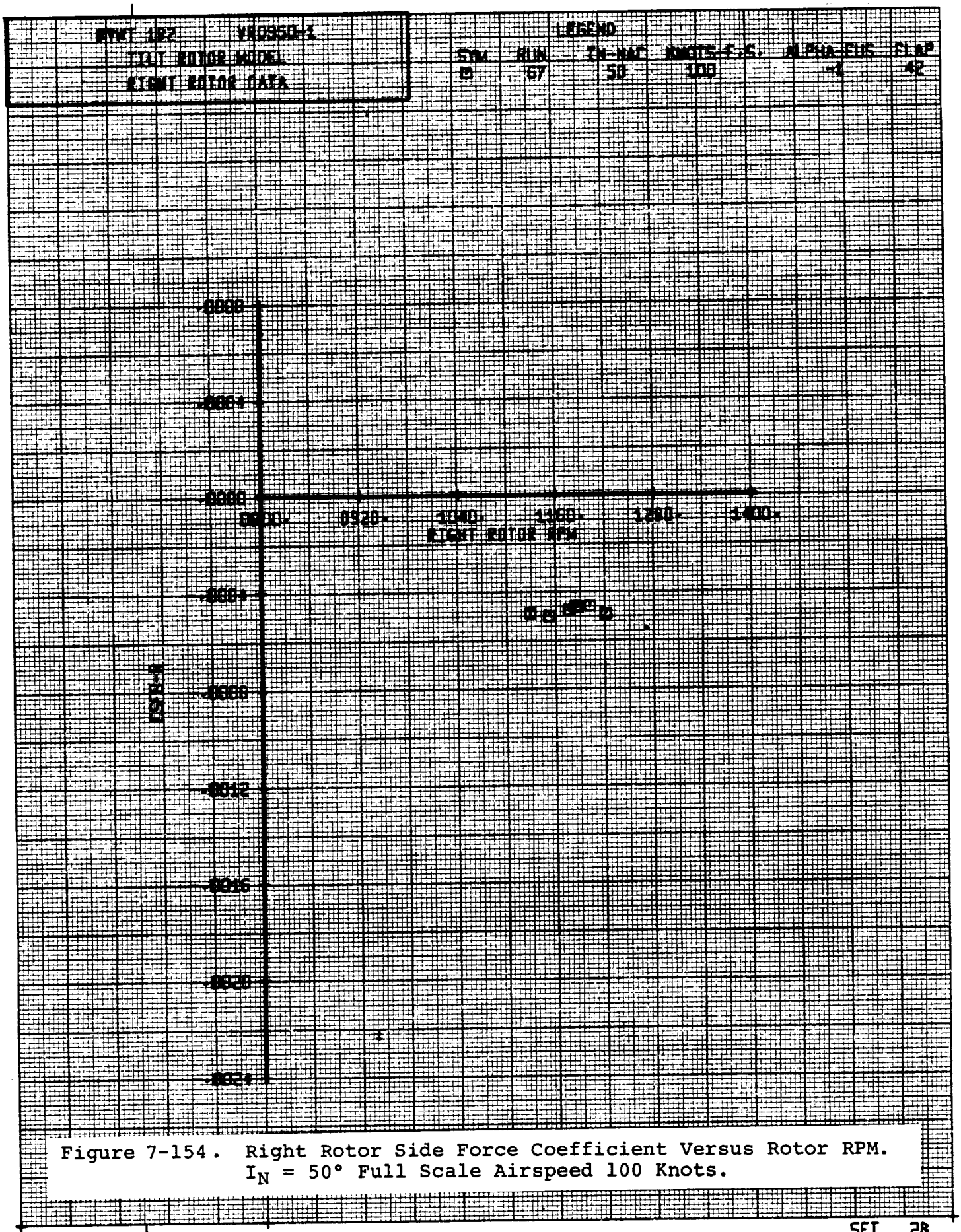


Figure 7-154. Right Rotor Side Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

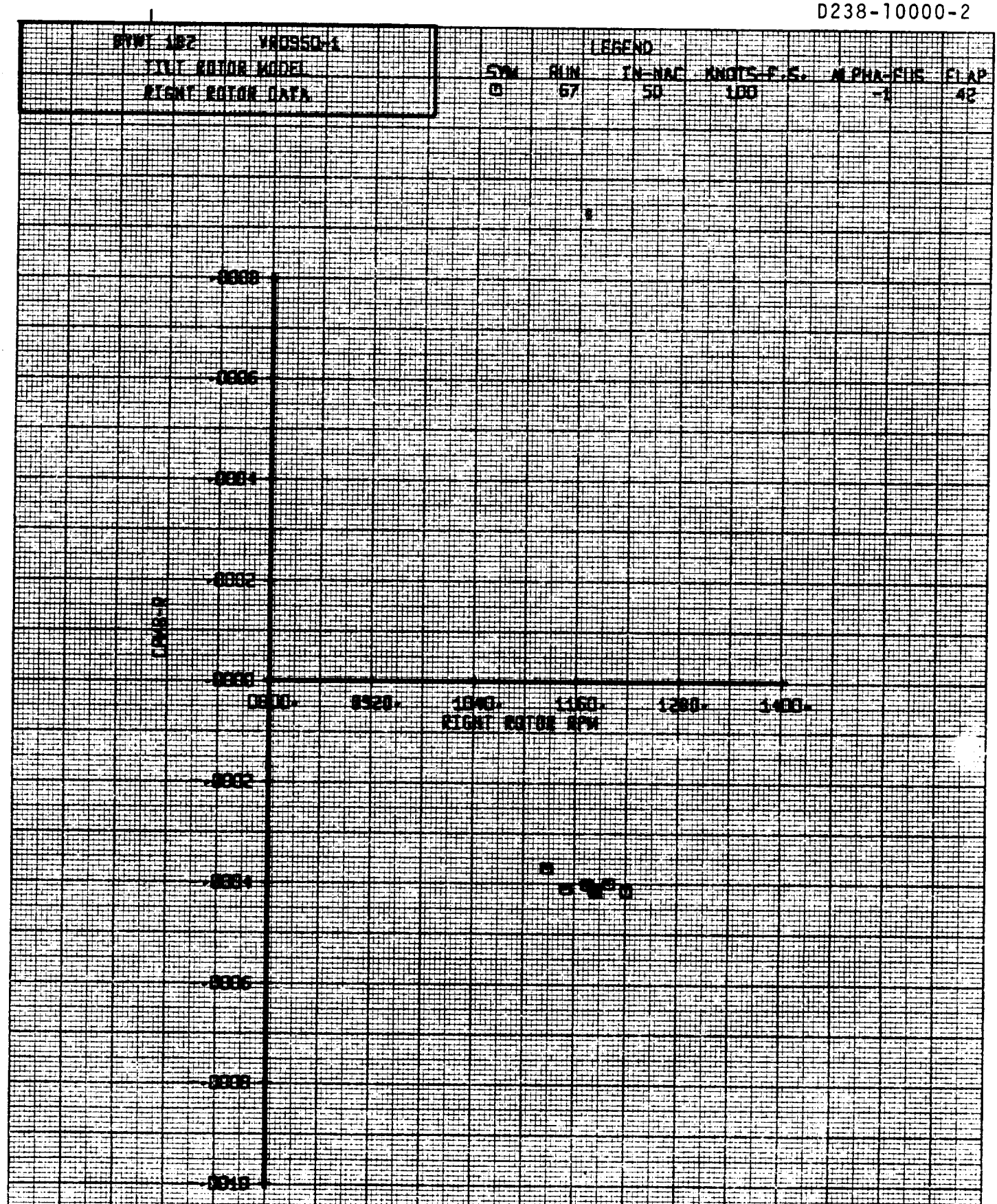


Figure 7-155. Right Rotor Pitching Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

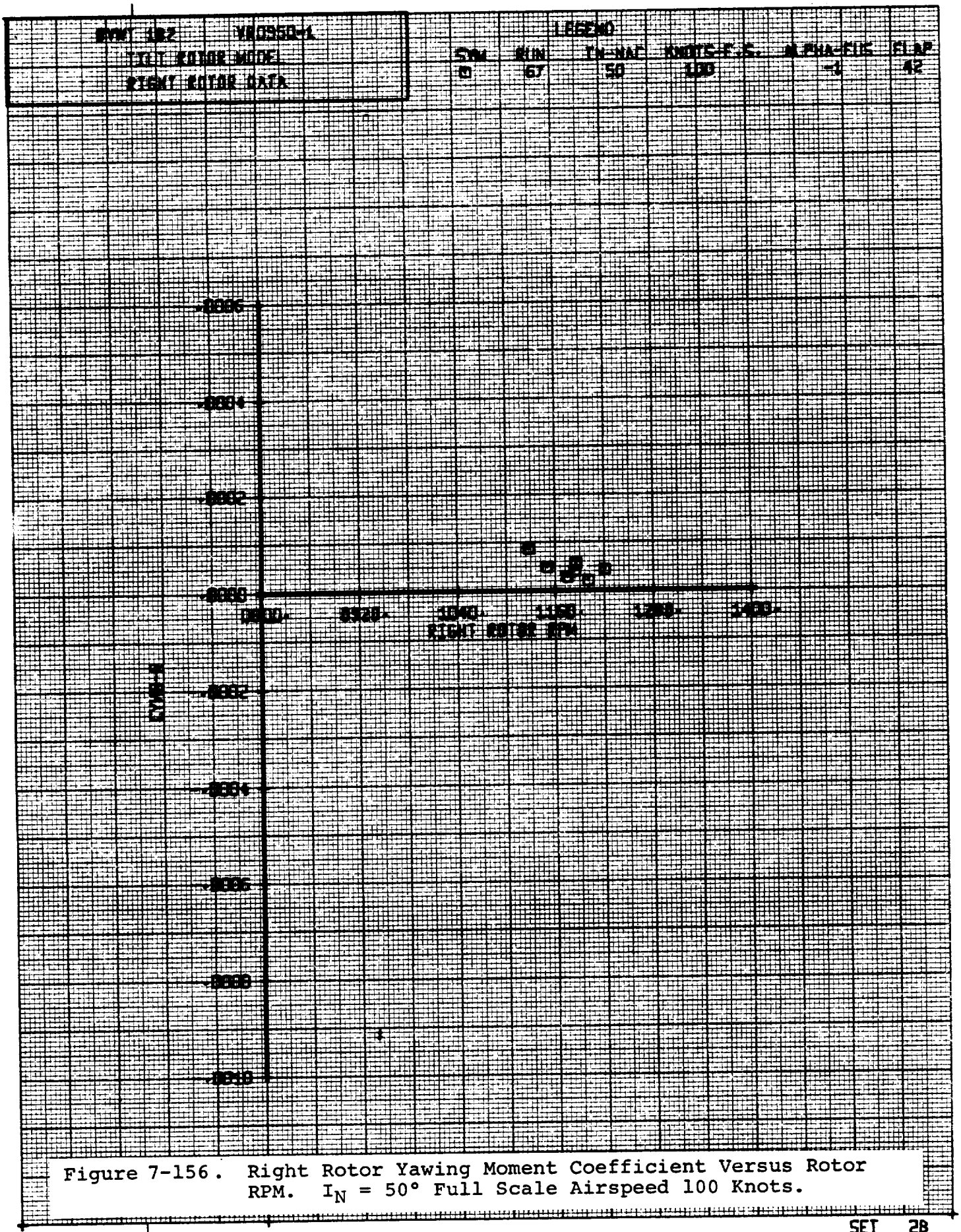


Figure 7-156. Right Rotor Yawing Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

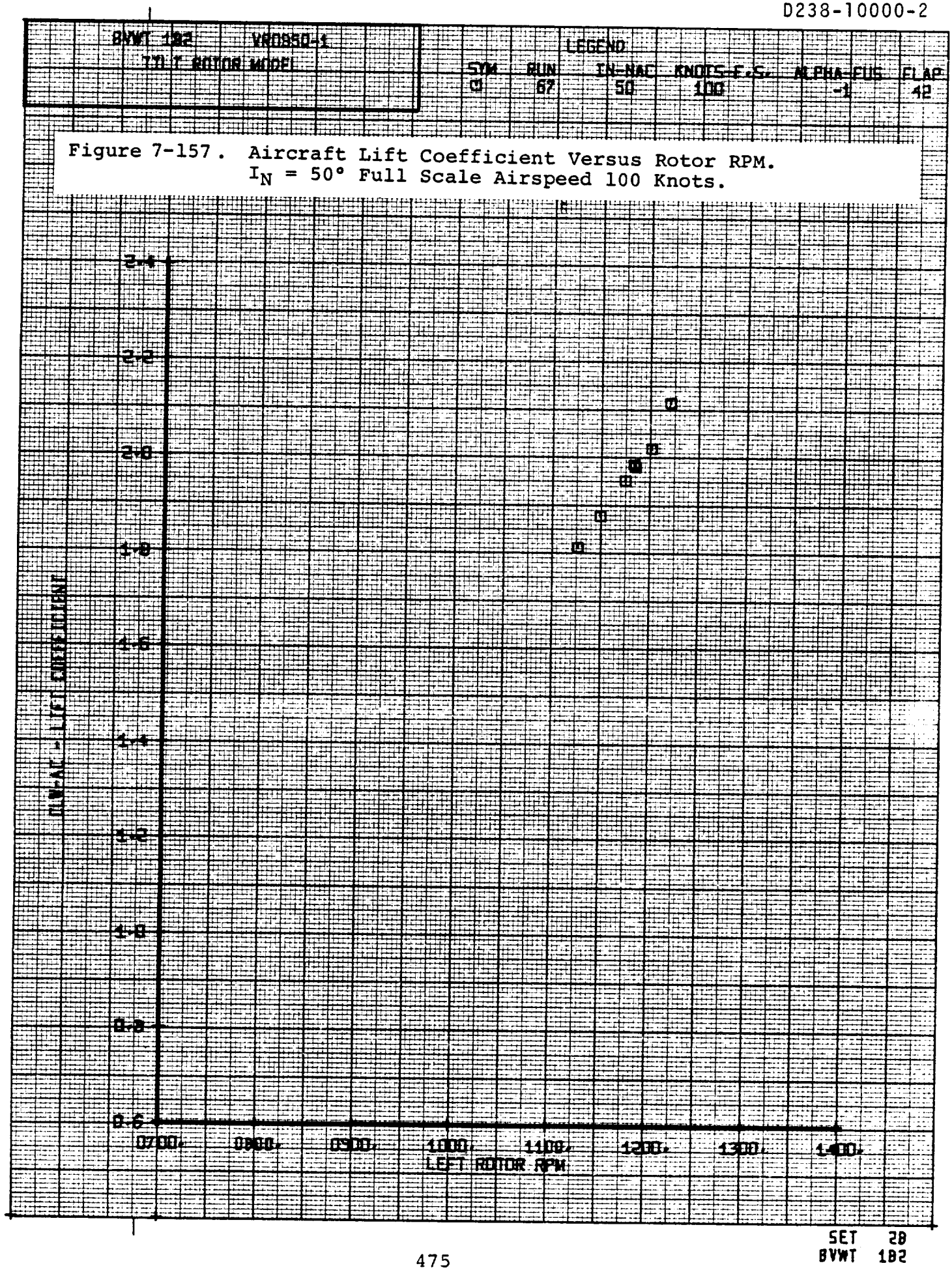


Figure 7-157. Aircraft Lift Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

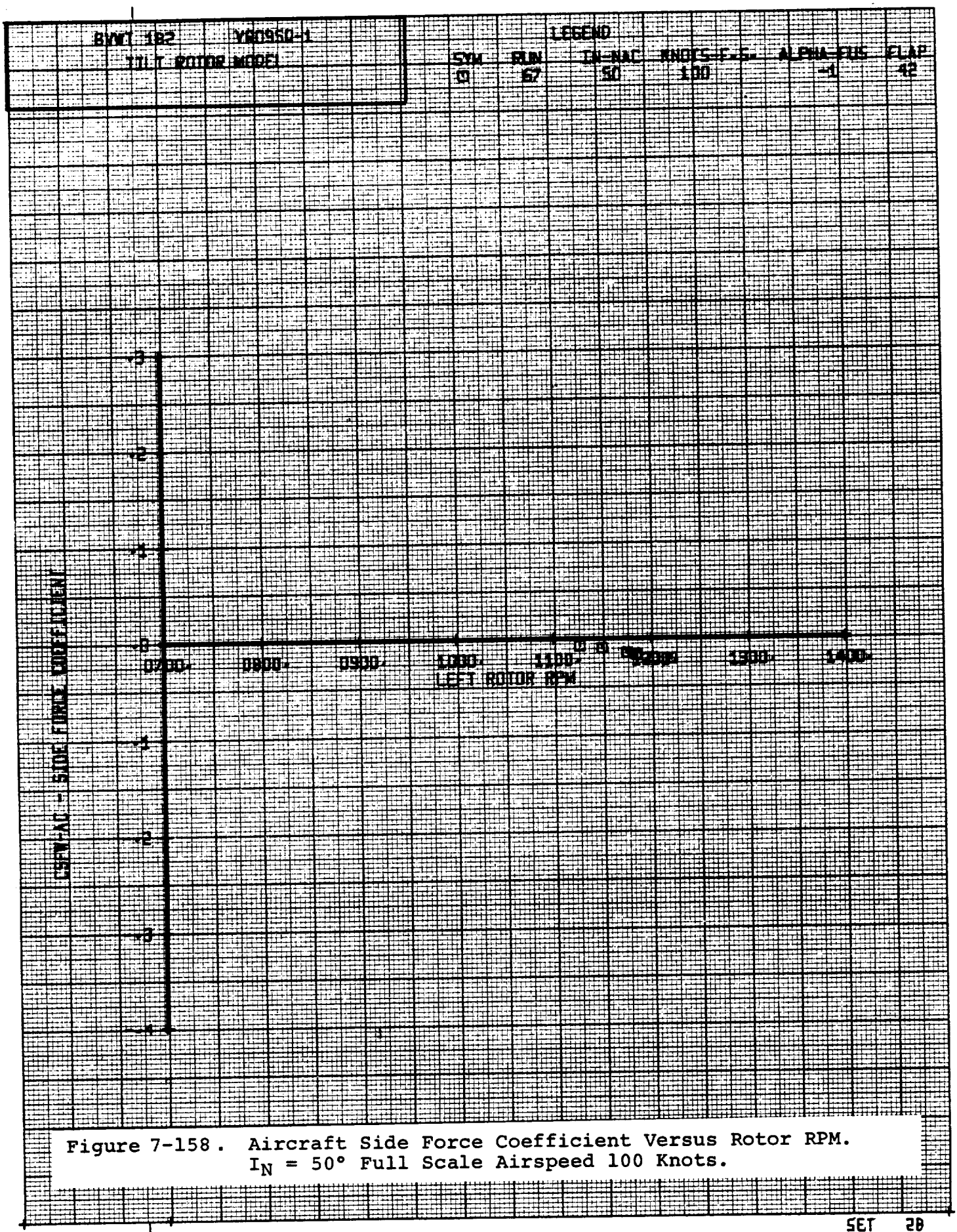


Figure 7-158. Aircraft Side Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

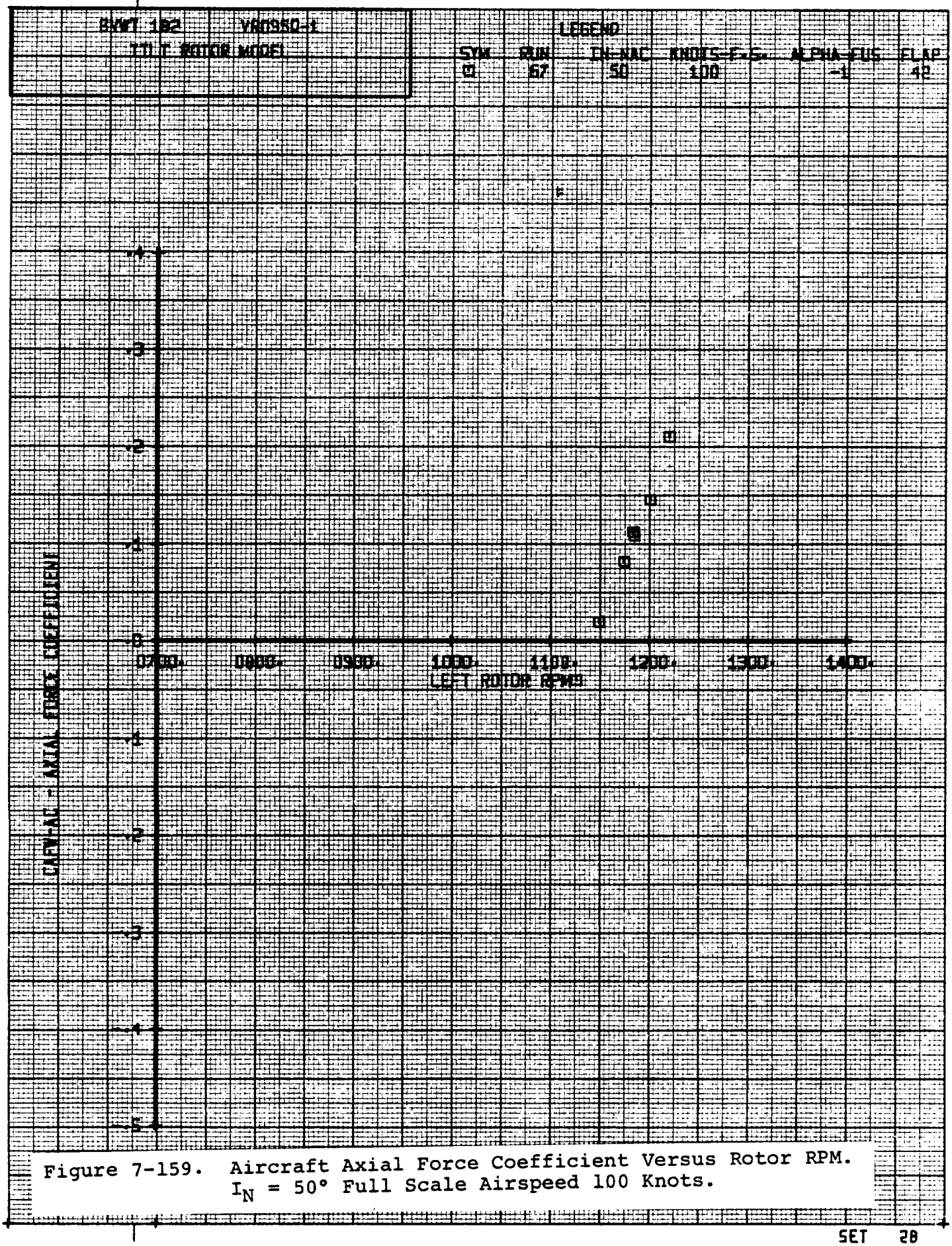


Figure 7-159. Aircraft Axial Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

ET 2B
182

SET 2B
BVWT 182

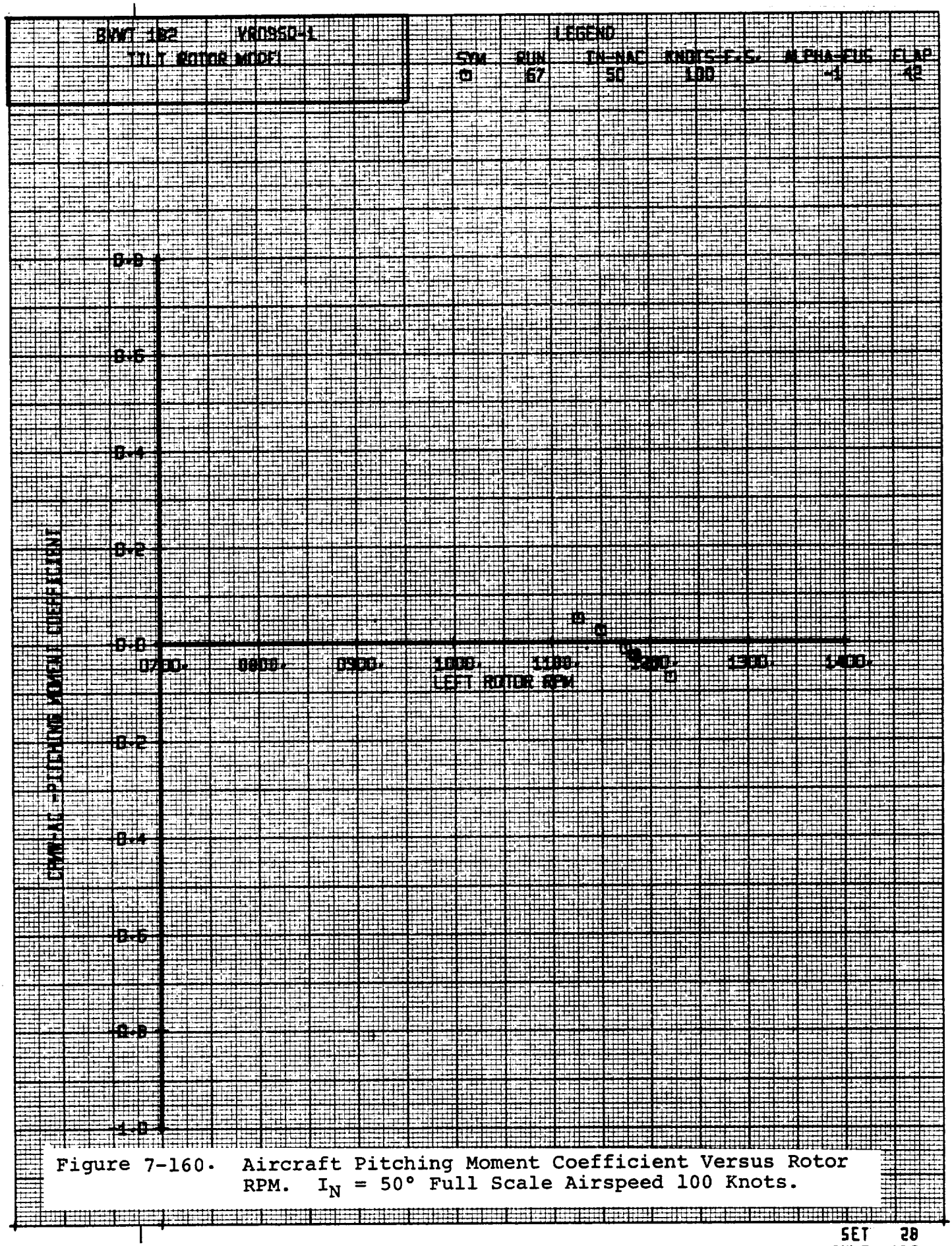


Figure 7-160. Aircraft Pitching Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

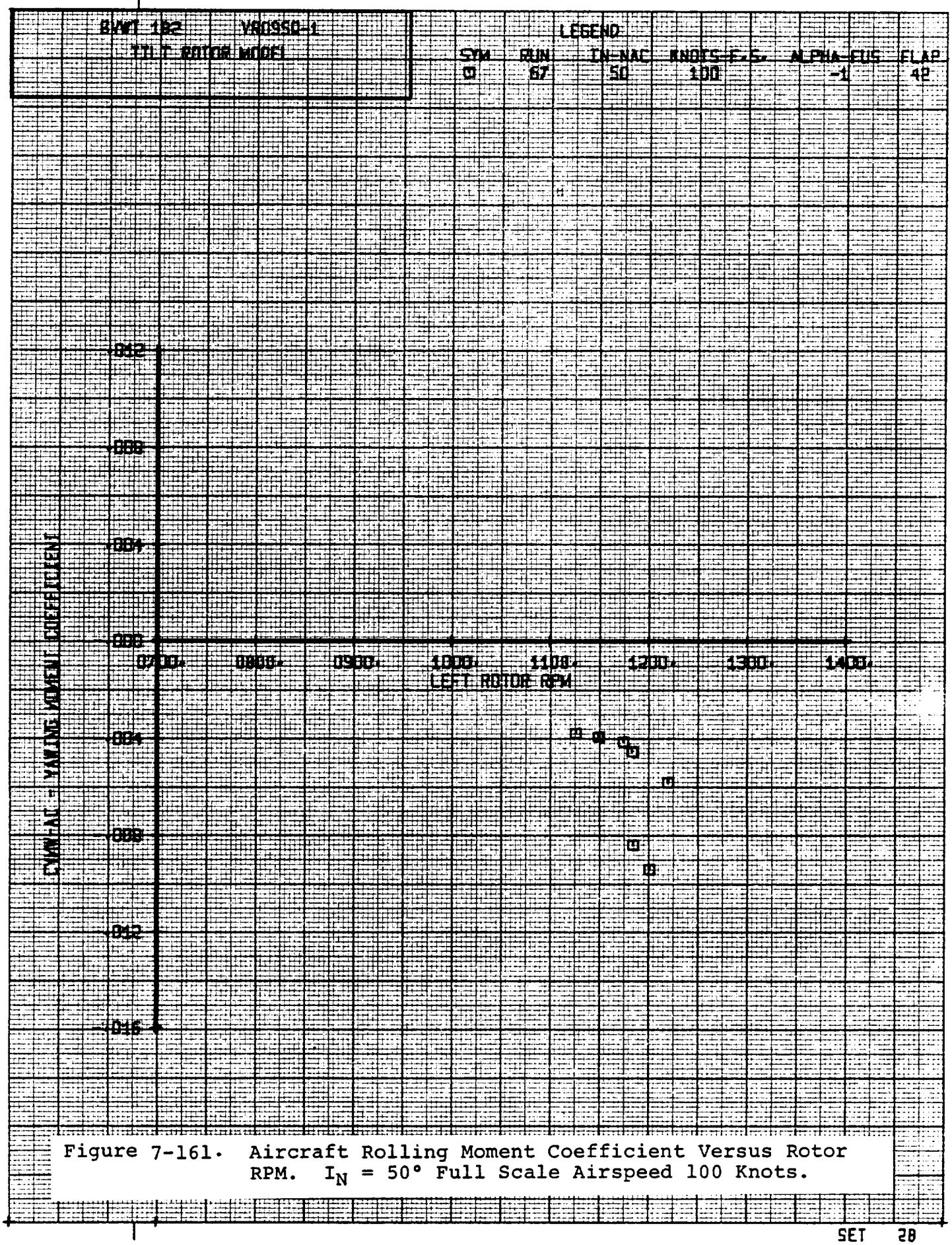


Figure 7-161. Aircraft Rolling Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

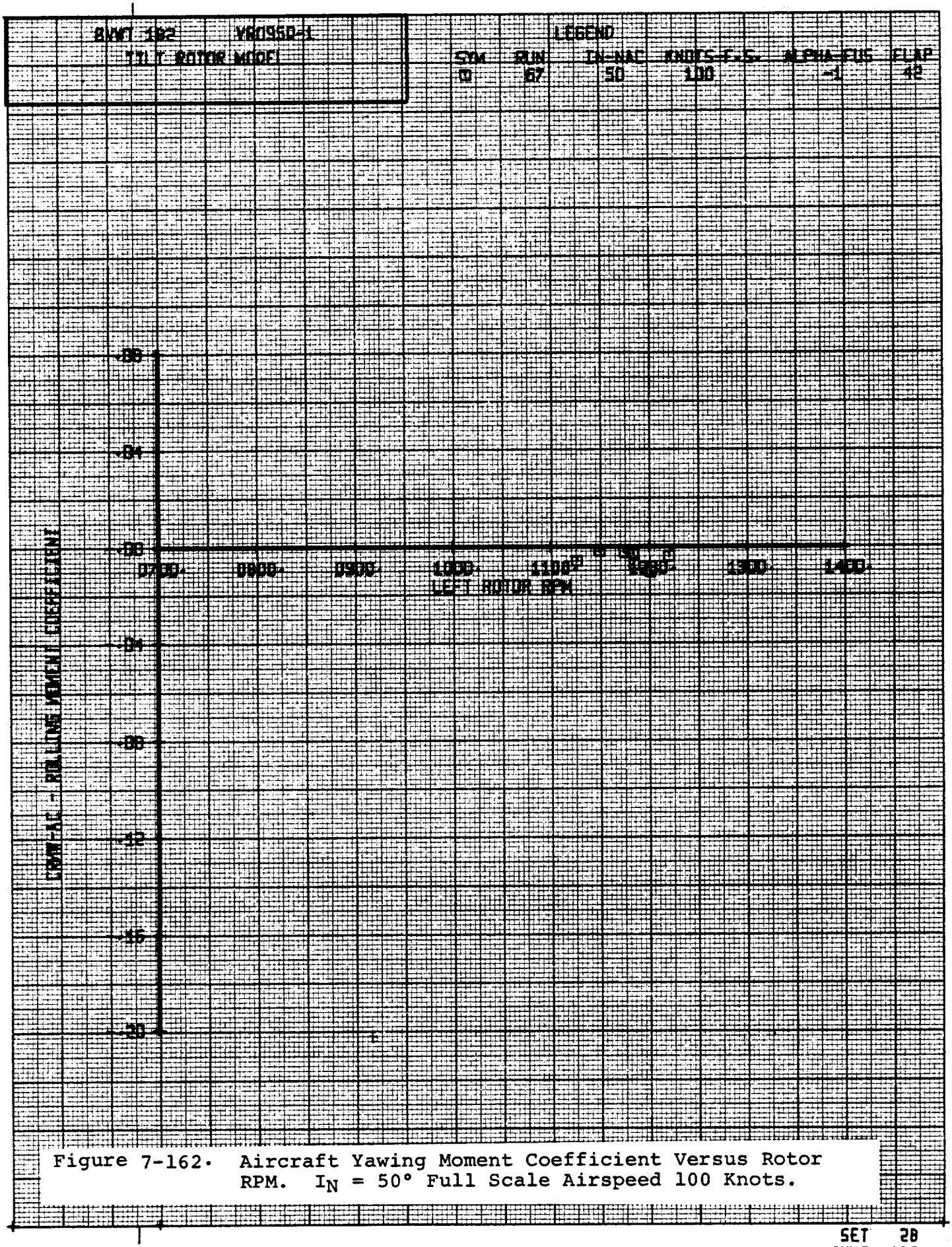


Figure 7-162. Aircraft Yawing Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

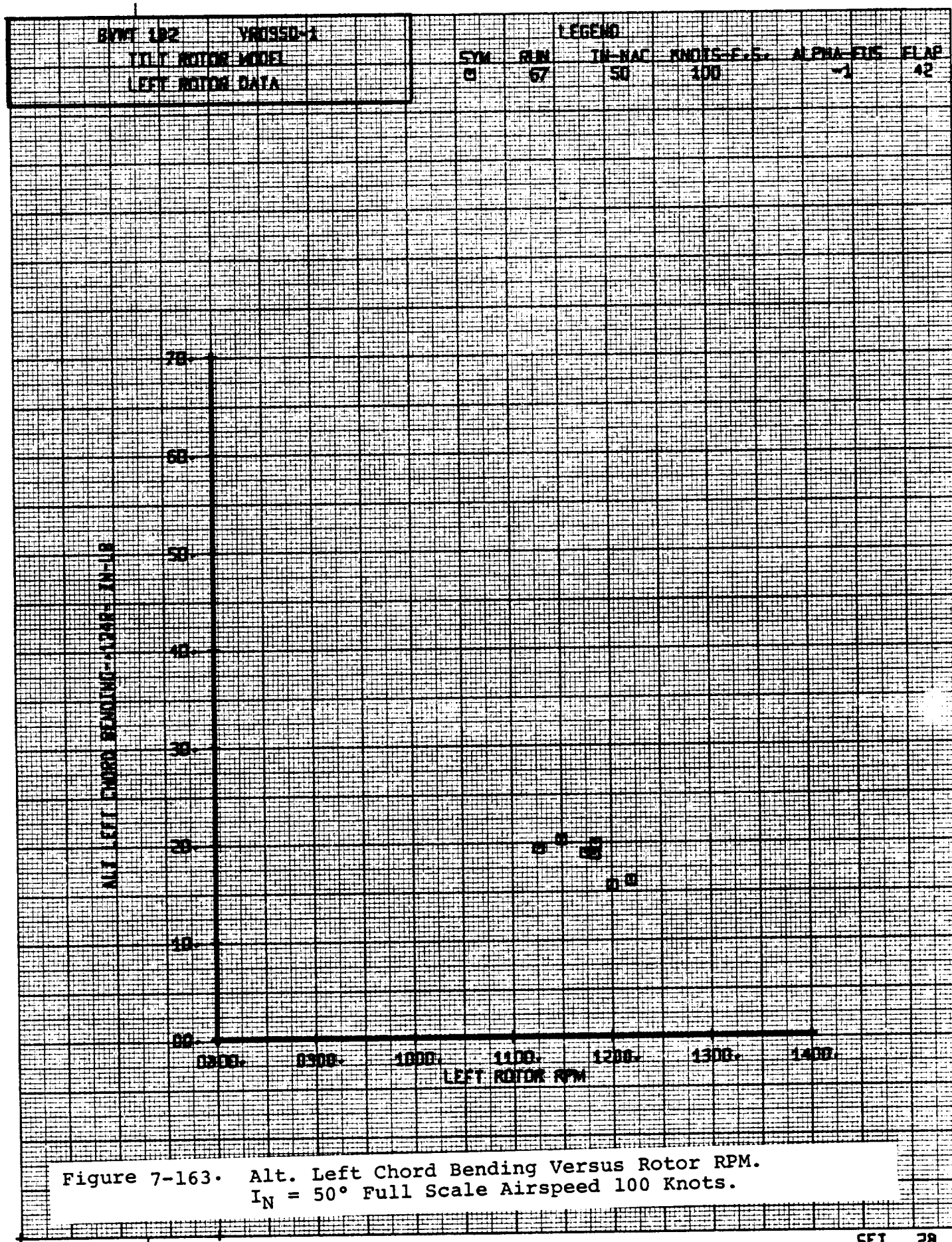


Figure 7-163. Alt. Left Chord Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

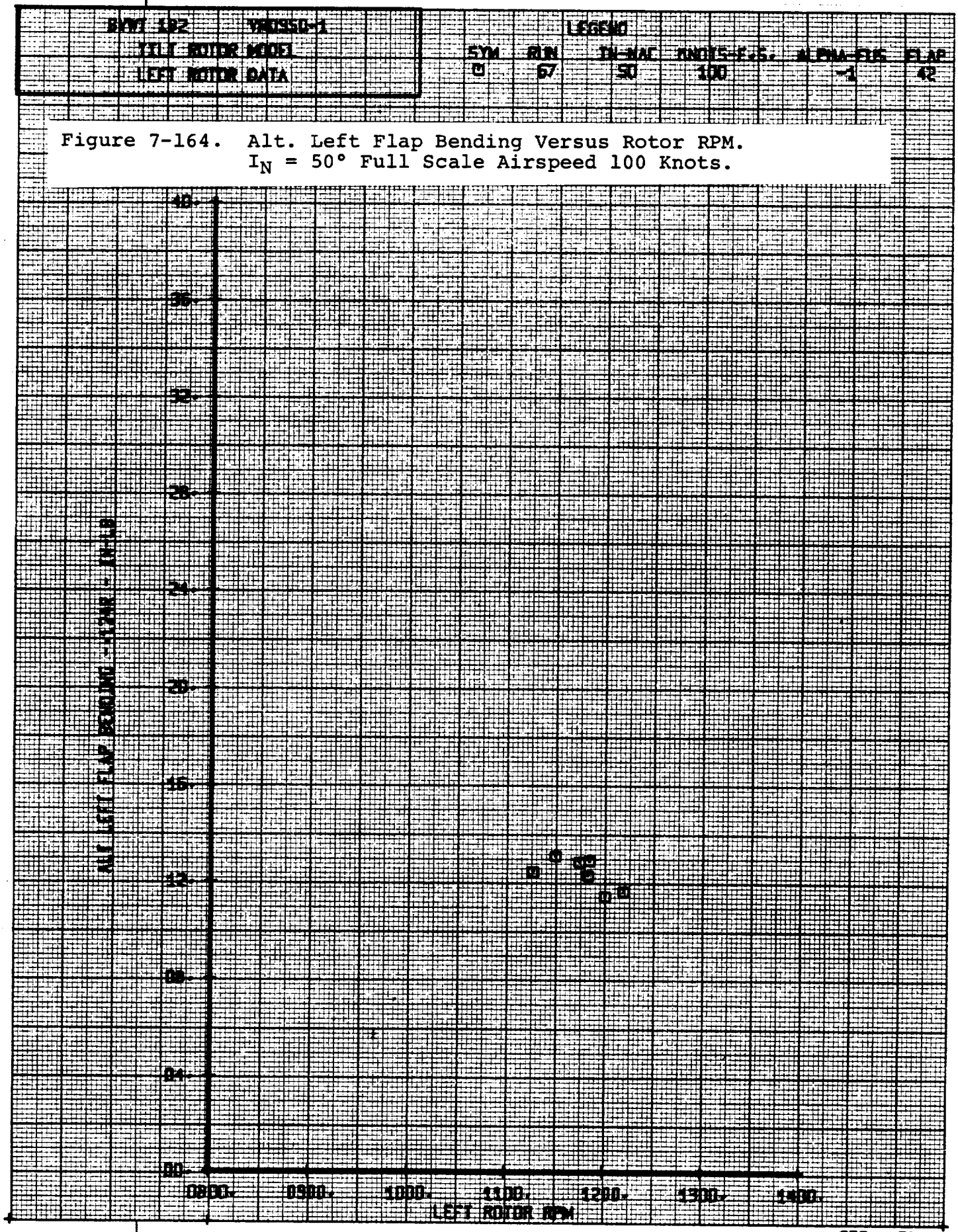


Figure 7-164. Alt. Left Flap Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

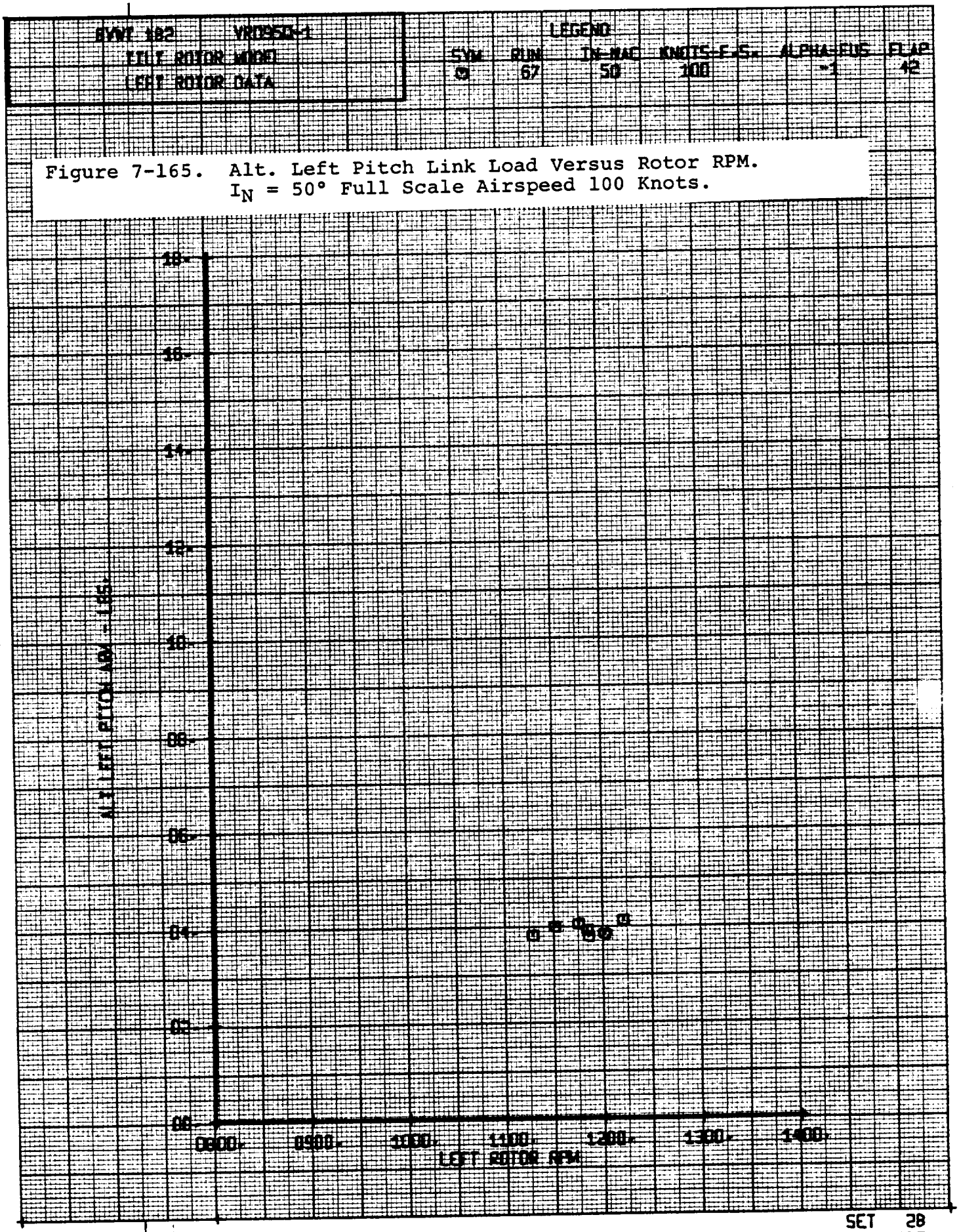


Figure 7-165. Alt. Left Pitch Link Load Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

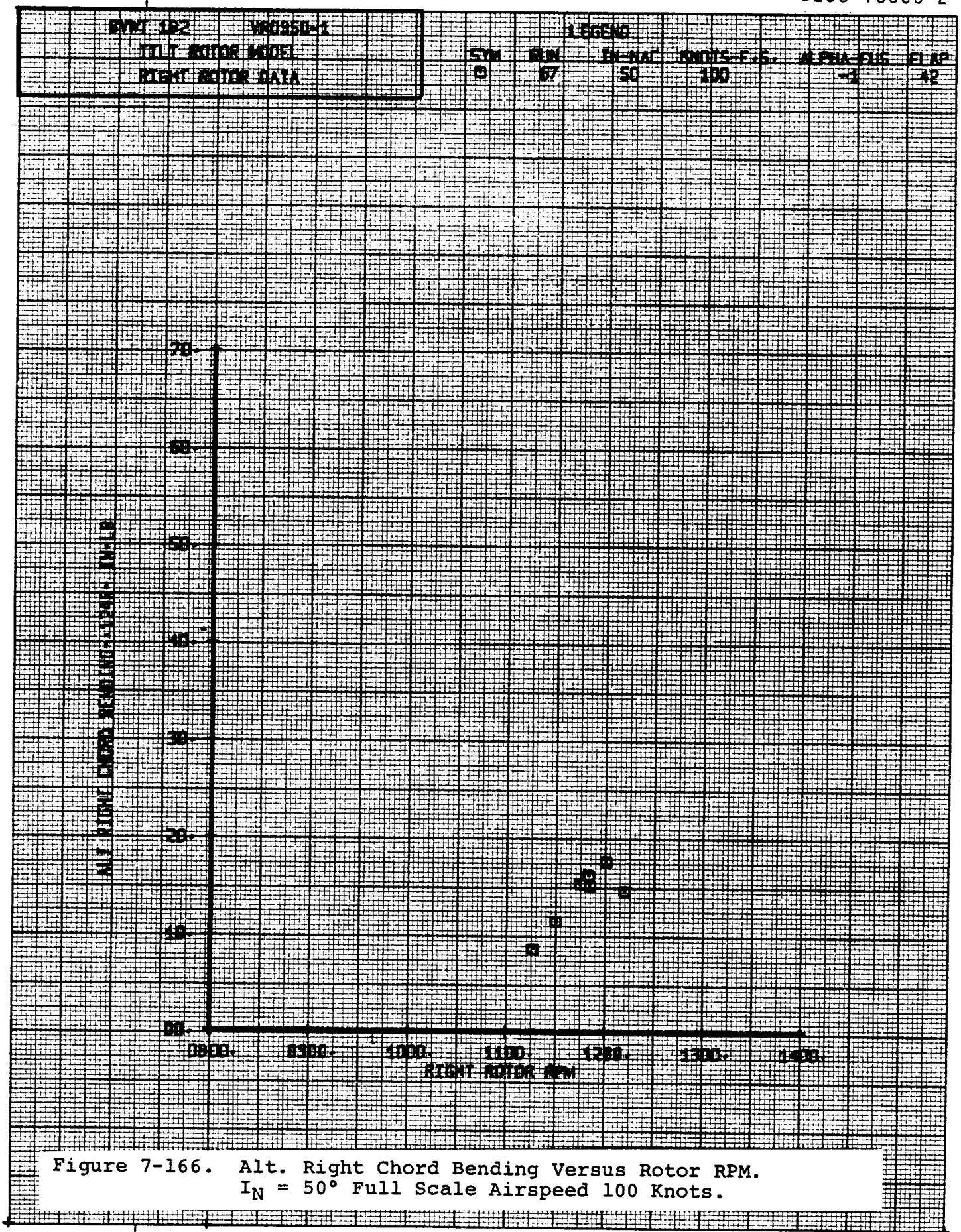


Figure 7-166. Alt. Right Chord Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

28
182

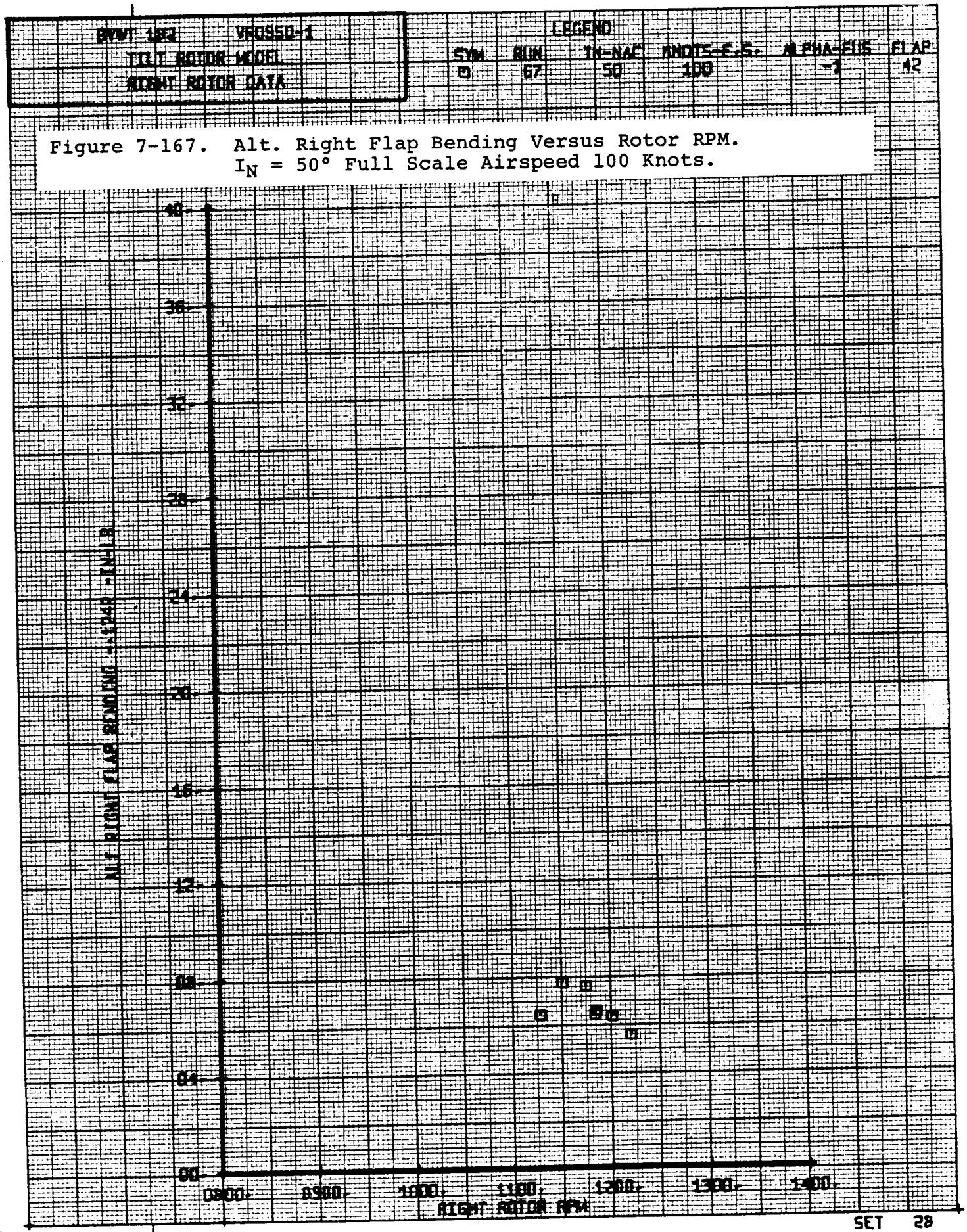


Figure 7-167. Alt. Right Flap Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

ET 28
182

SET 28
BVWT 182

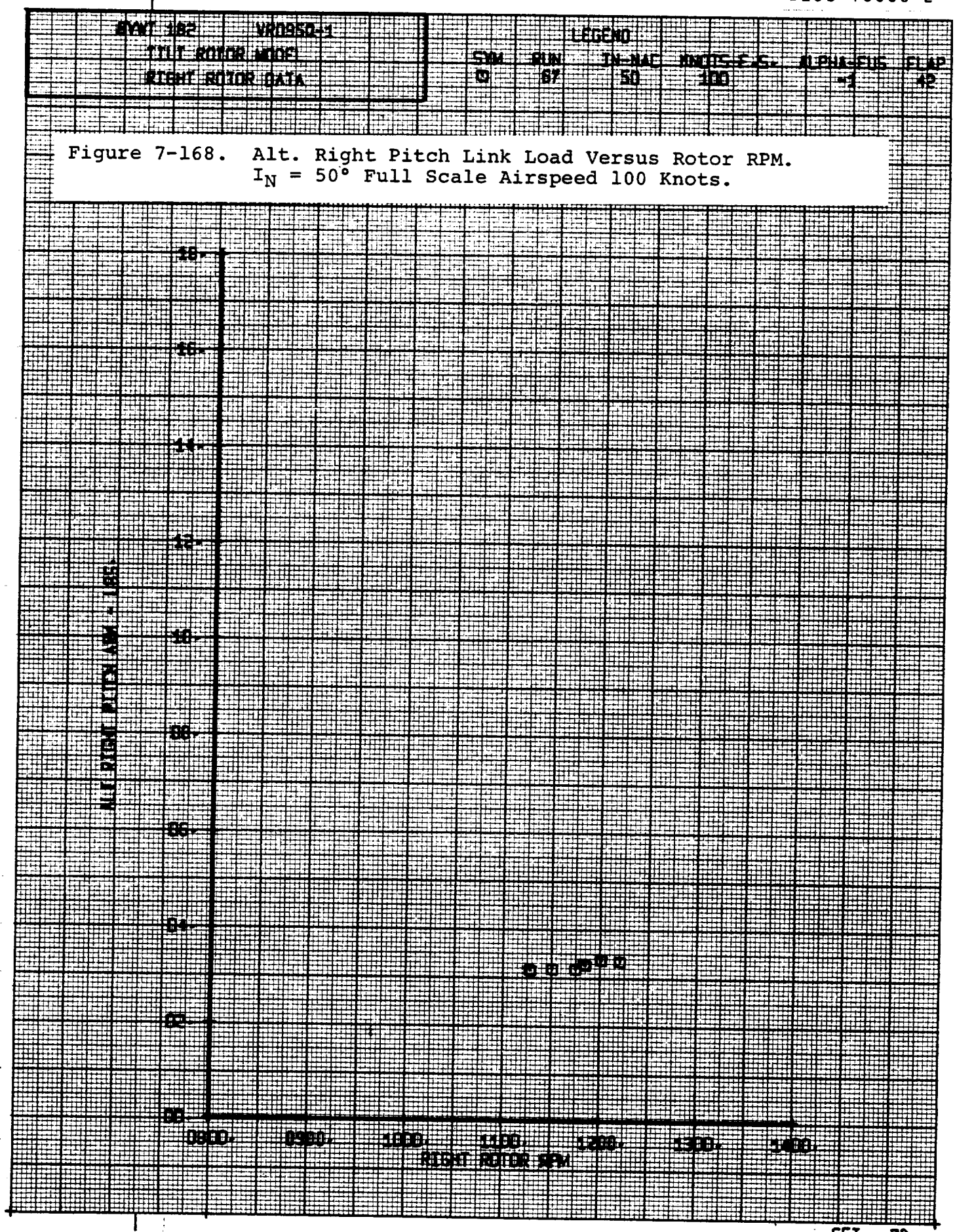


Figure 7-168. Alt. Right Pitch Link Load Versus Rotor RPM. I_N = 50° Full Scale Airspeed 100 Knots.

I_N - 50^0 V_{FS} = 140 KTS.

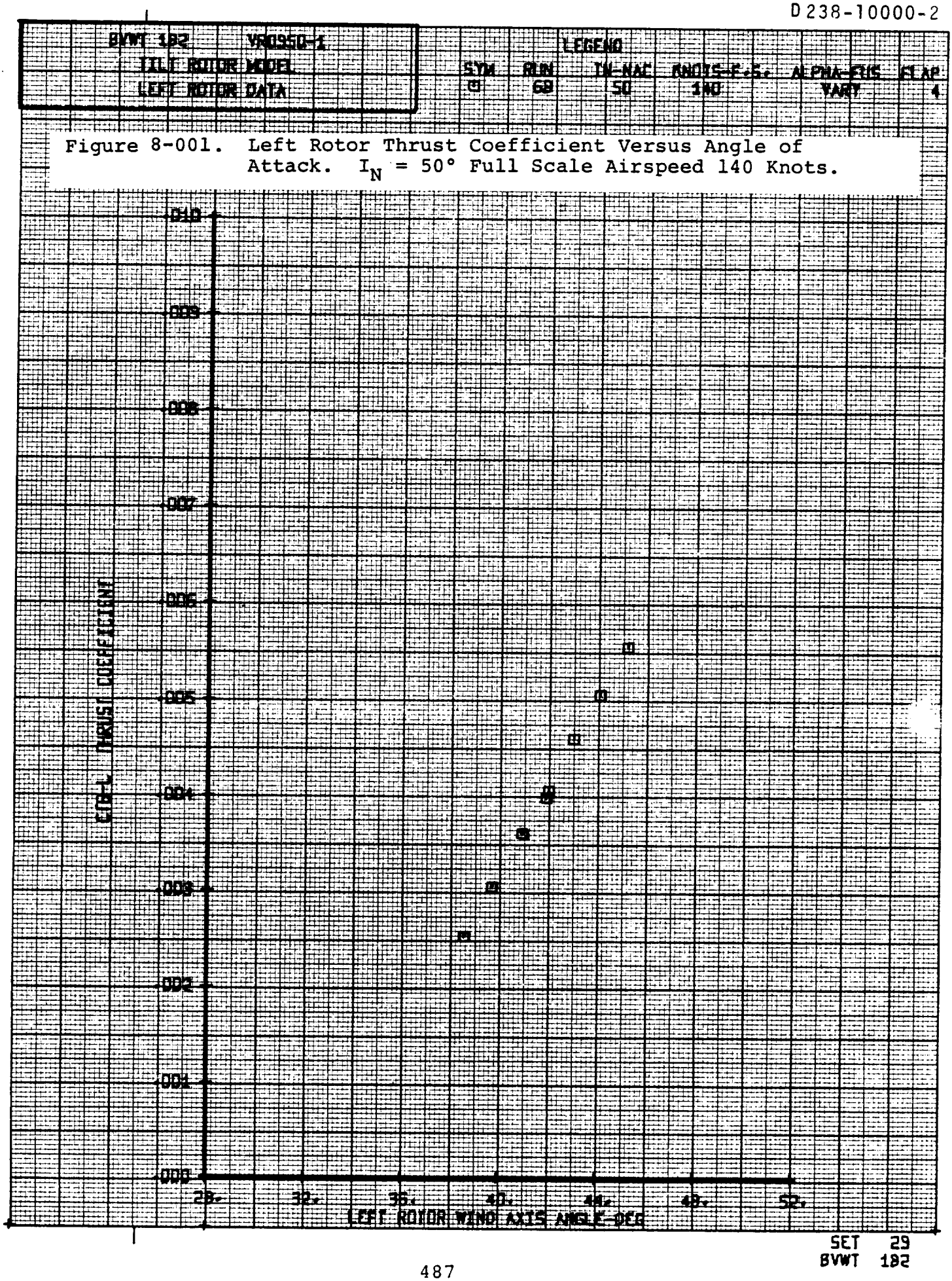


Figure 8-001. Left Rotor Thrust Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

FT 29
182

SET 29
BVWT 182

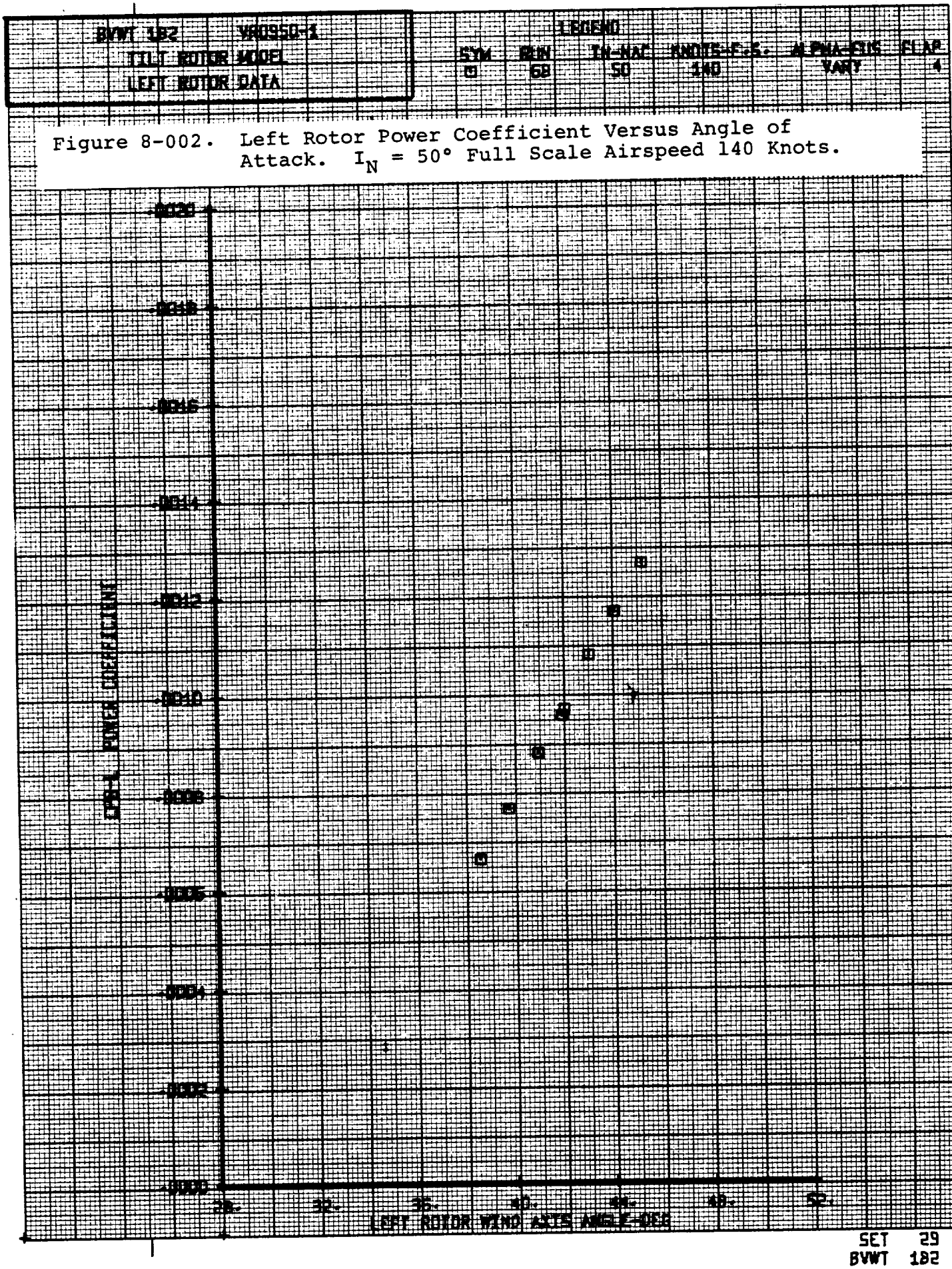


Figure 8-002. Left Rotor Power Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

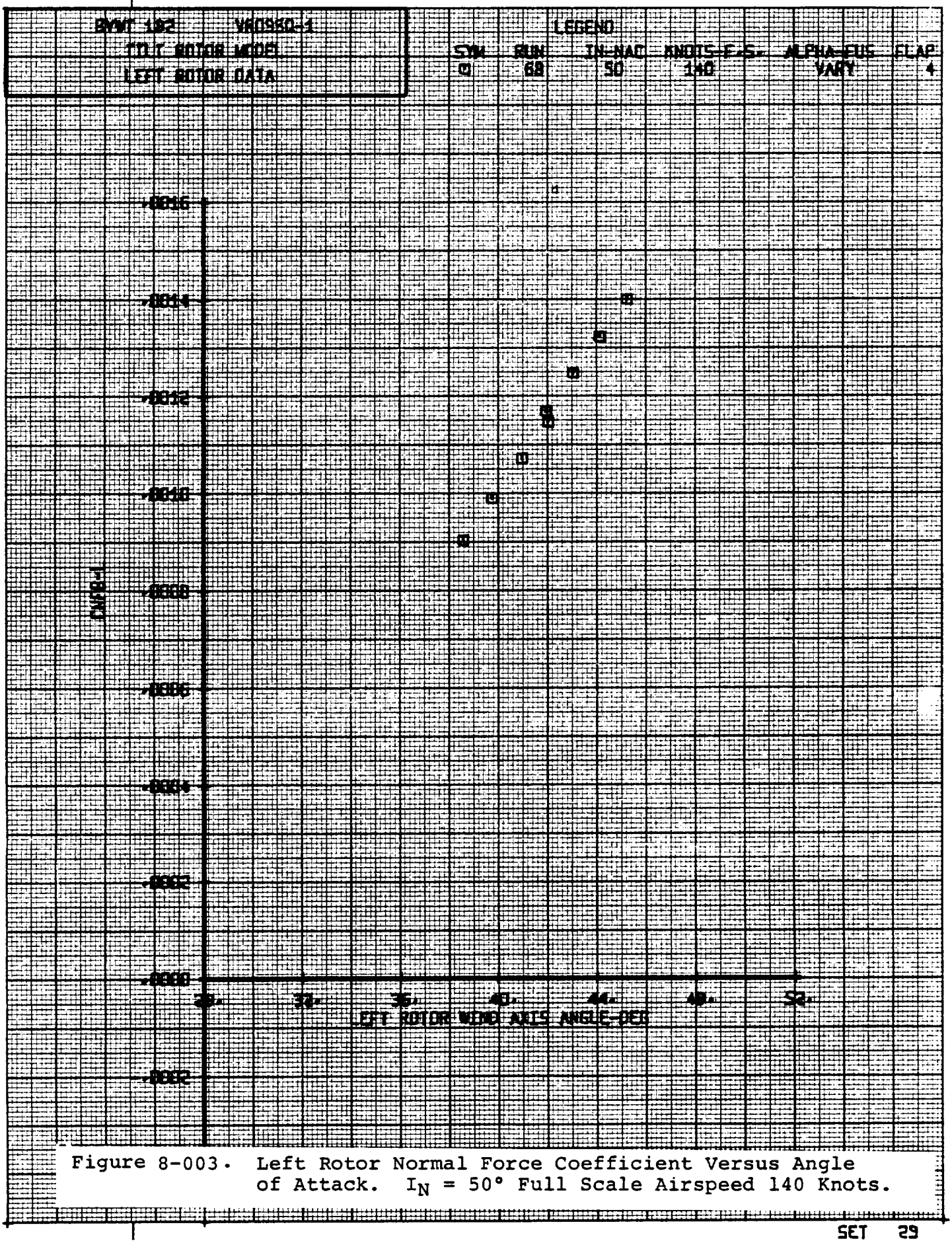


Figure 8-003. Left Rotor Normal Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

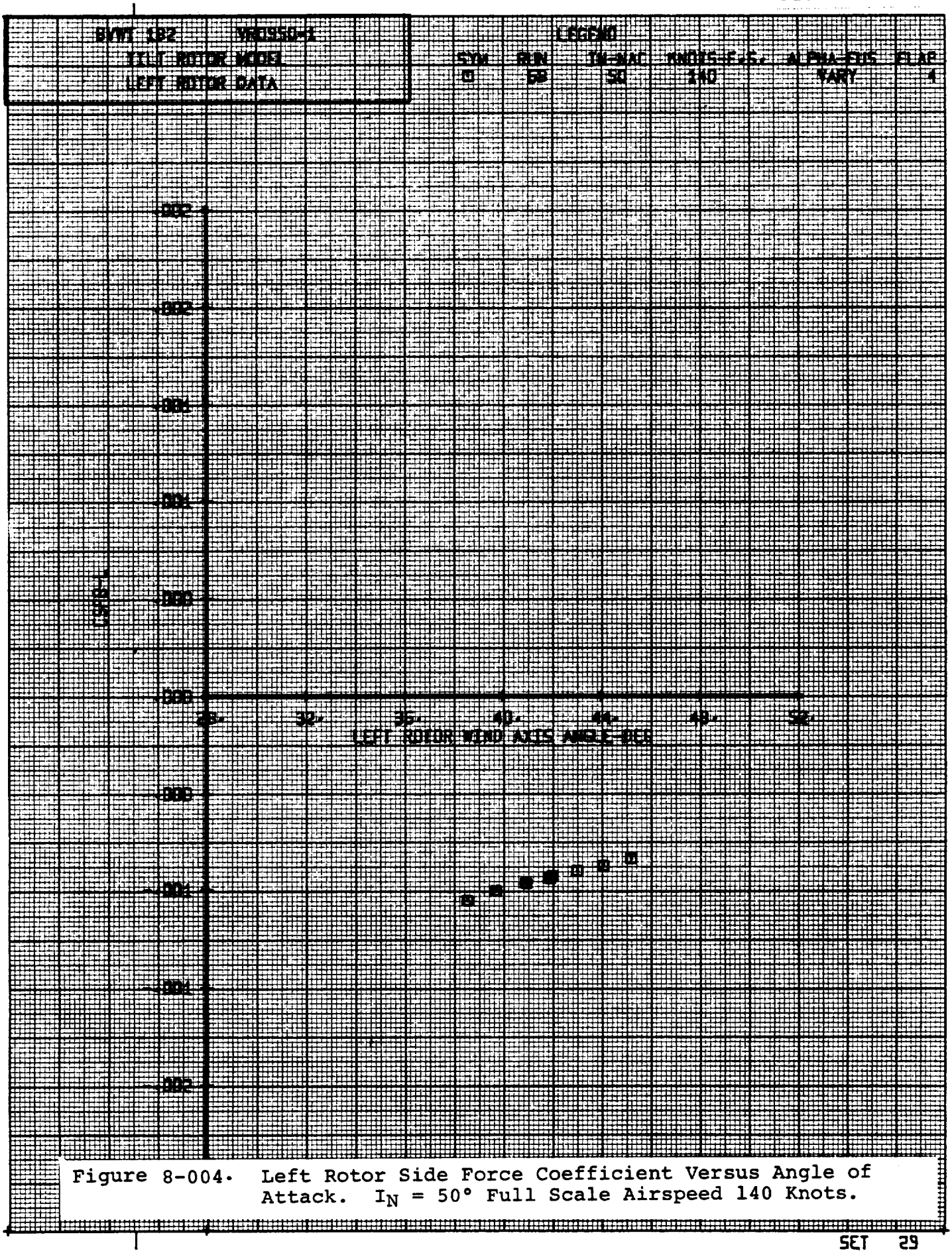


Figure 8-004. Left Rotor Side Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

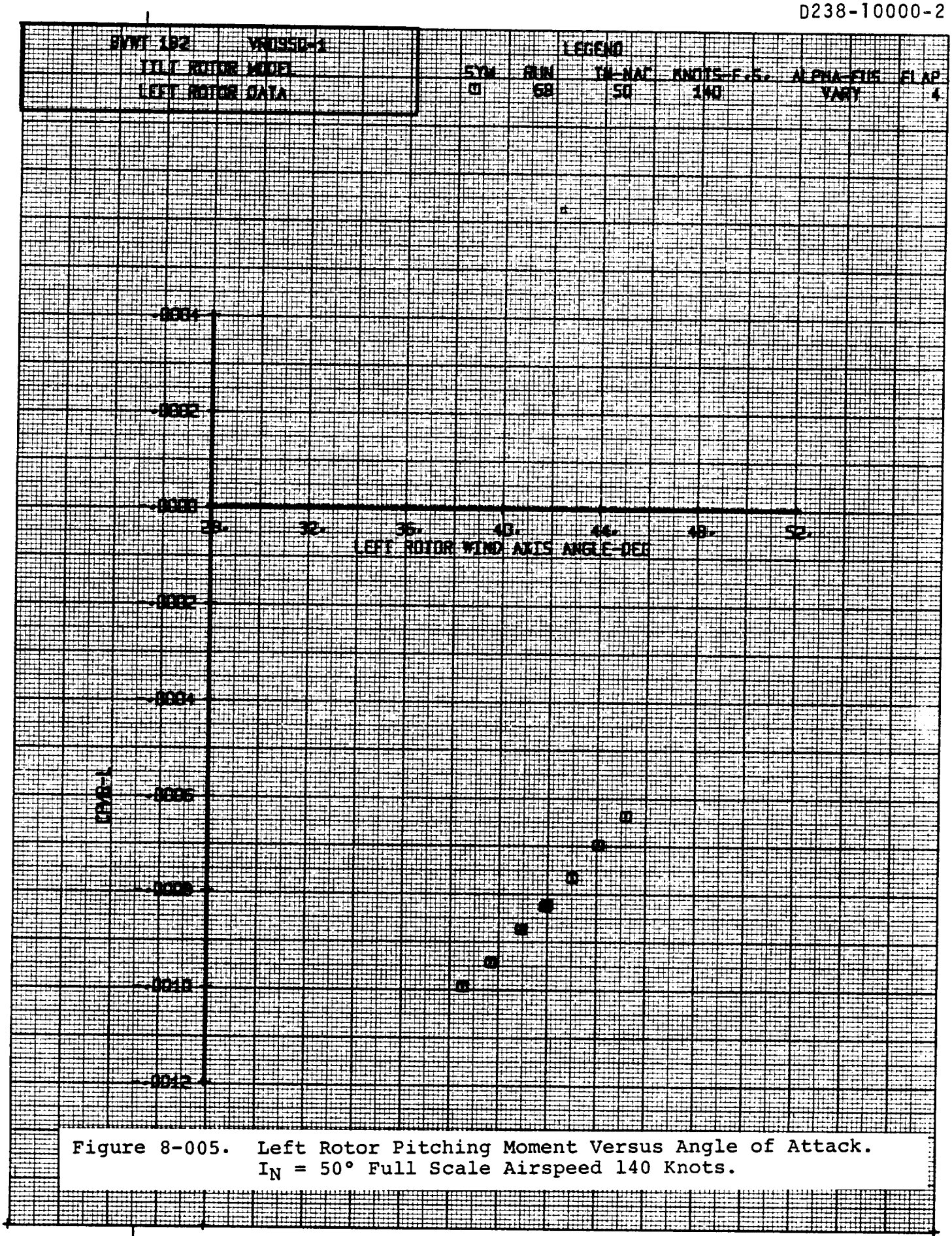


Figure 8-005. Left Rotor Pitching Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

FT 29
V 182

SET 29
BVWT 182

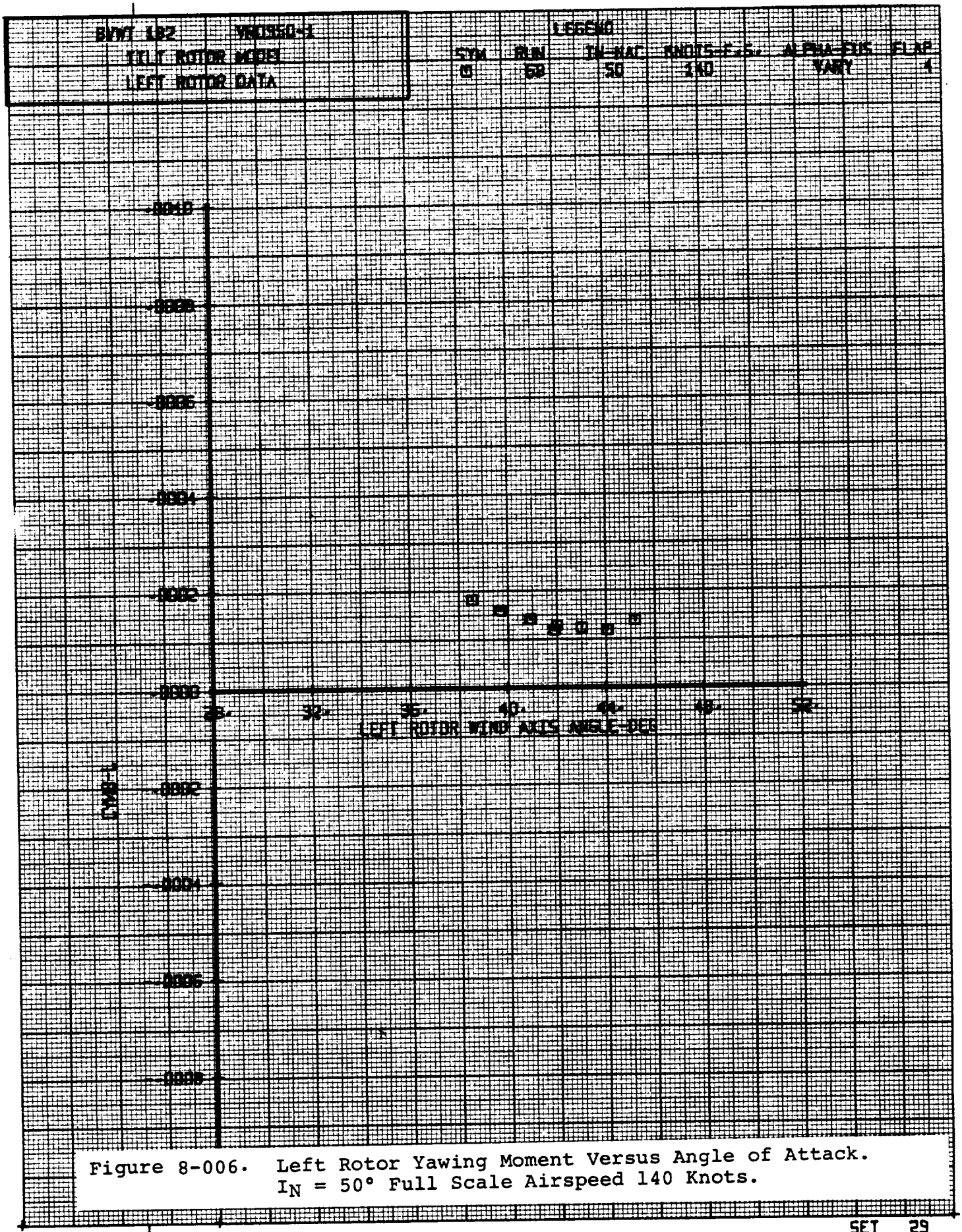


Figure 8-006. Left Rotor Yawing Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

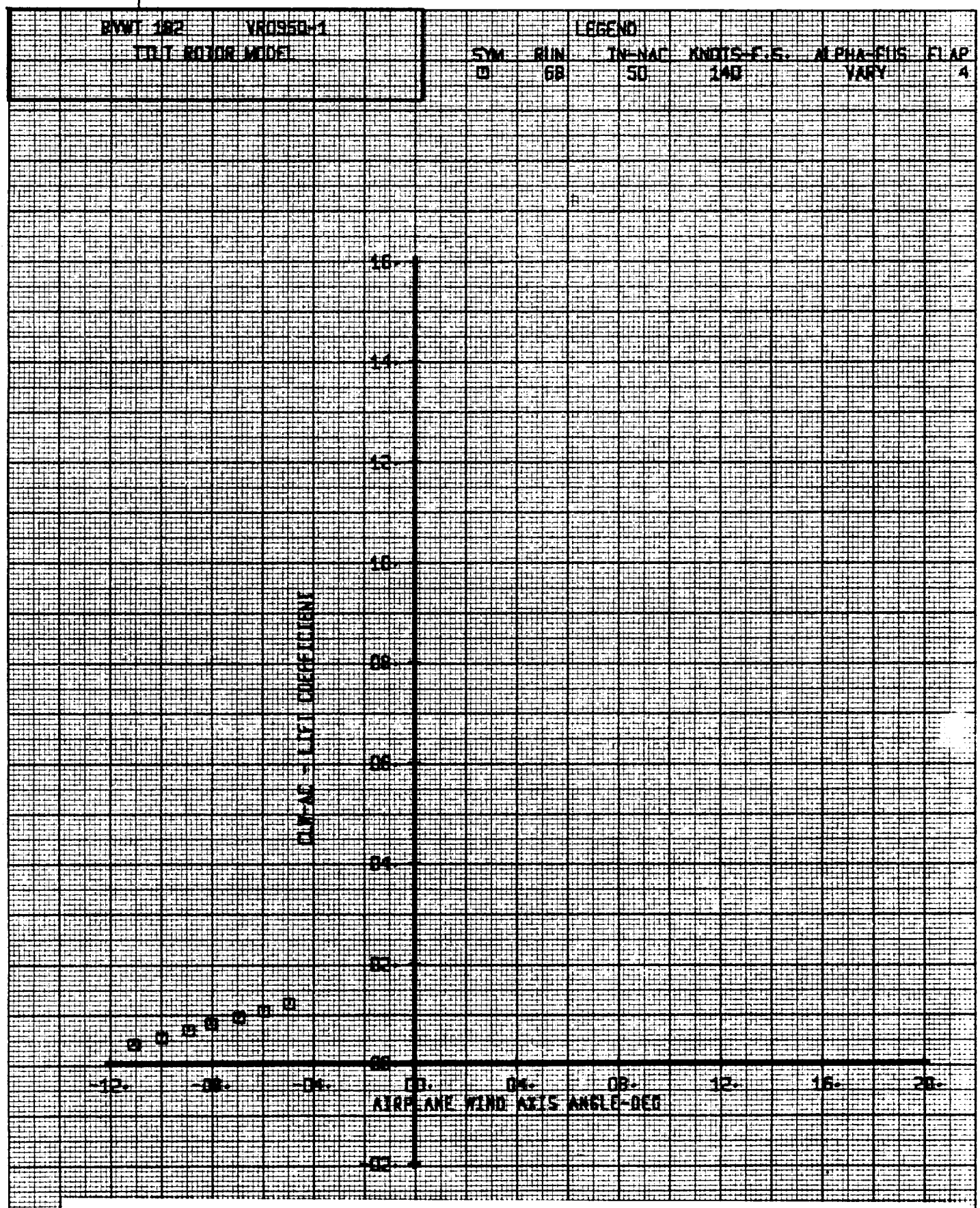


Figure 8-007. Aircraft Lift Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

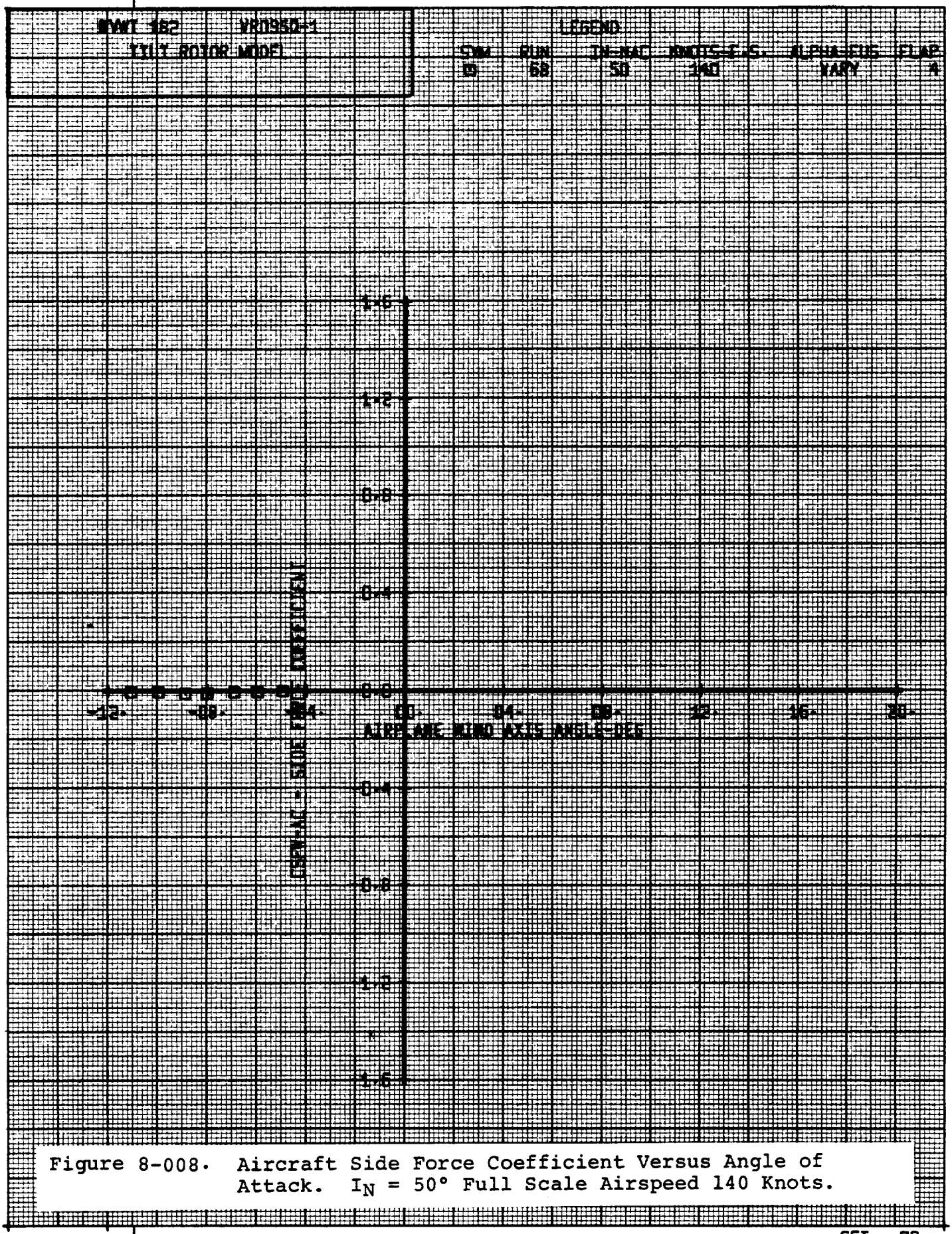


Figure 8-008. Aircraft Side Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

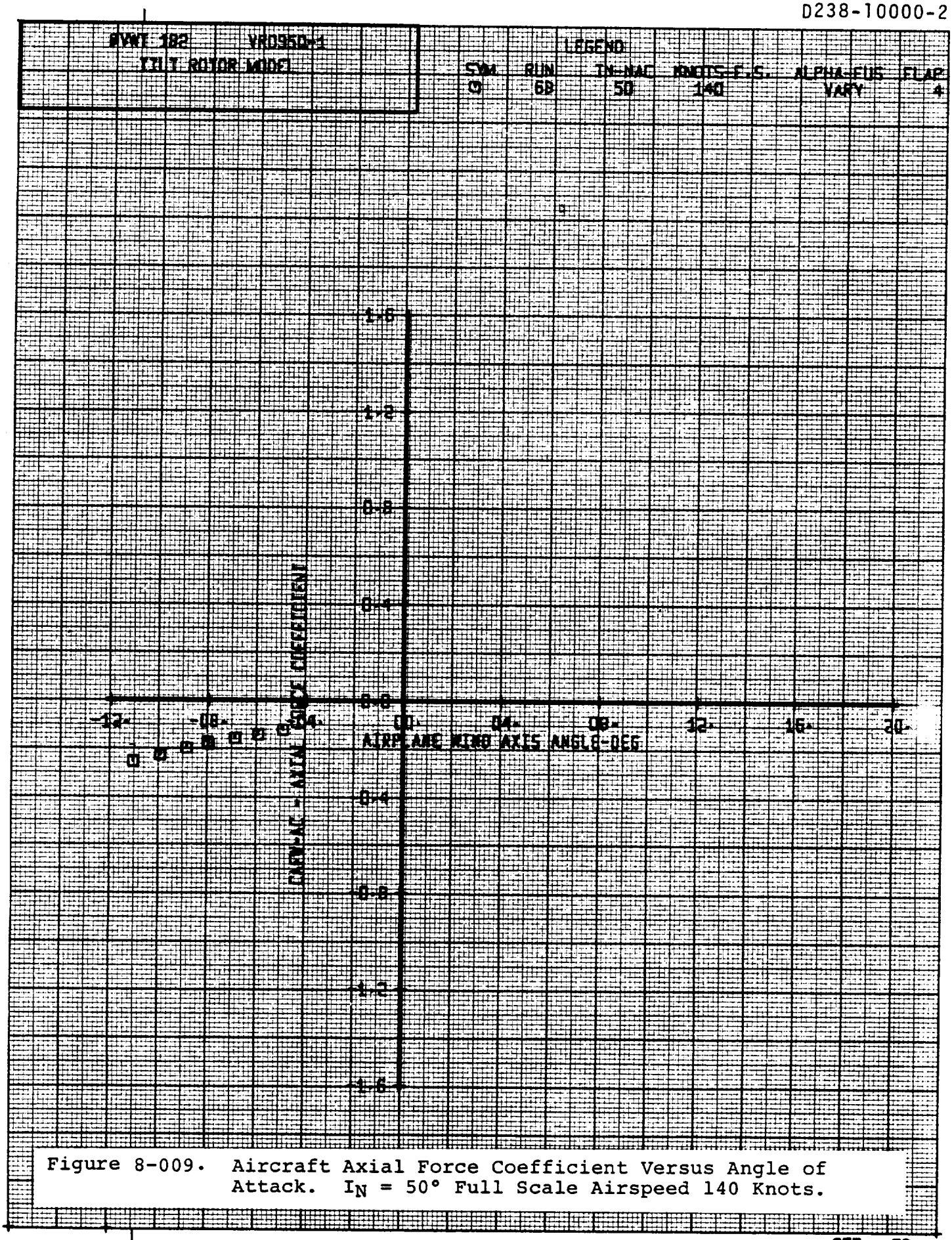


Figure 8-009. Aircraft Axial Force Coefficient Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

SET 29
BVWT 182

SET 29
BVWT 182

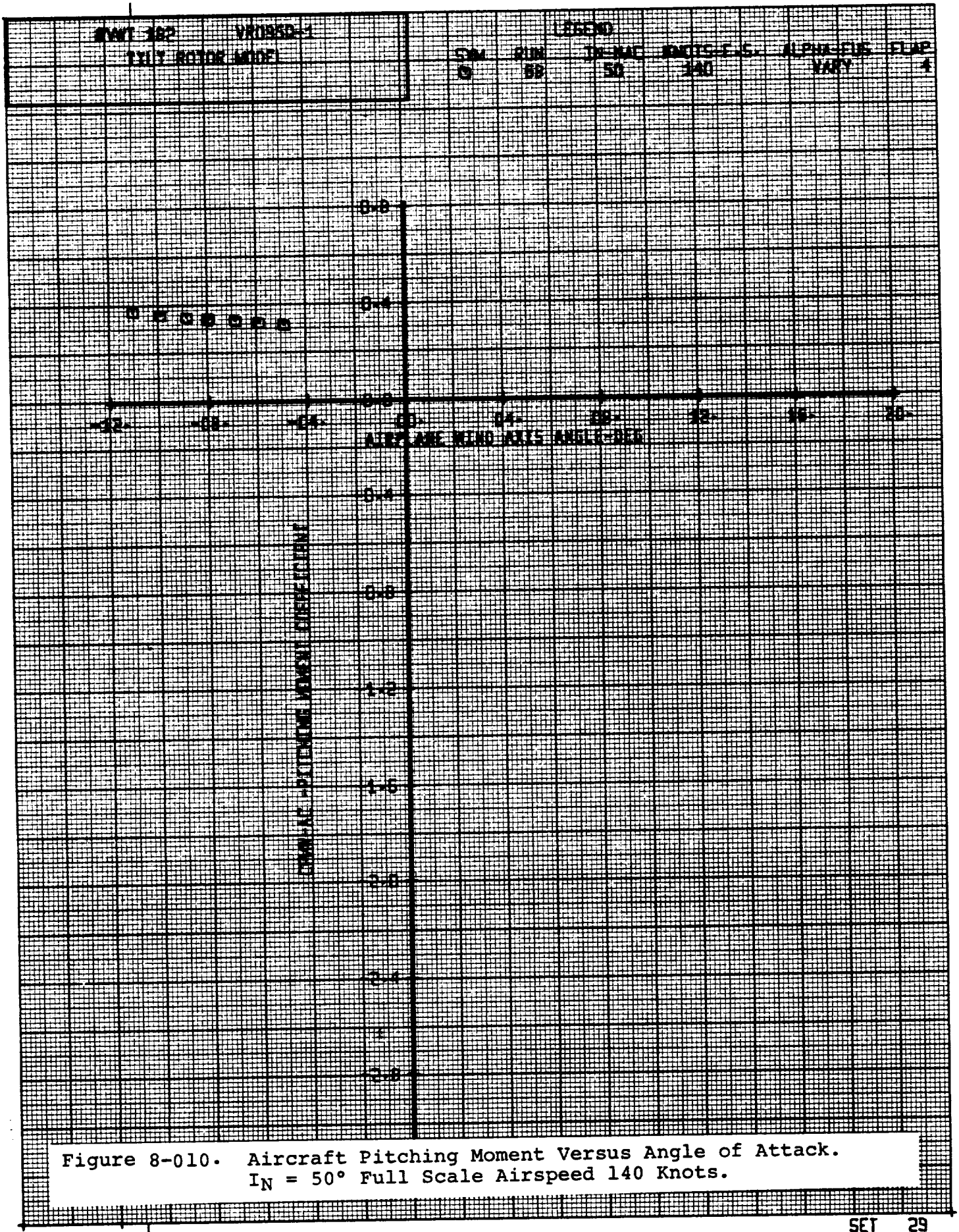


Figure 8-010. Aircraft Pitching Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

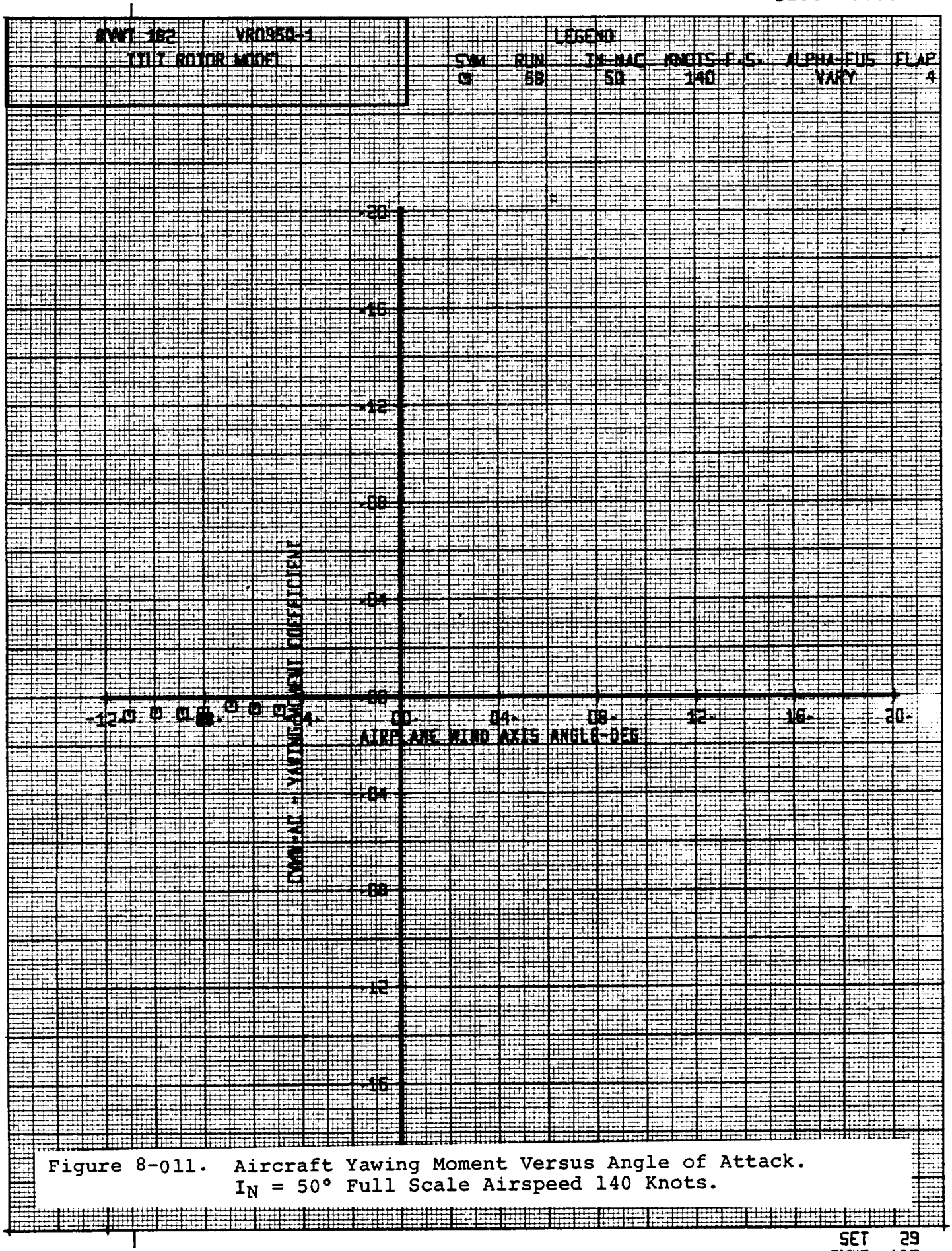


Figure 8-011. Aircraft Yawing Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

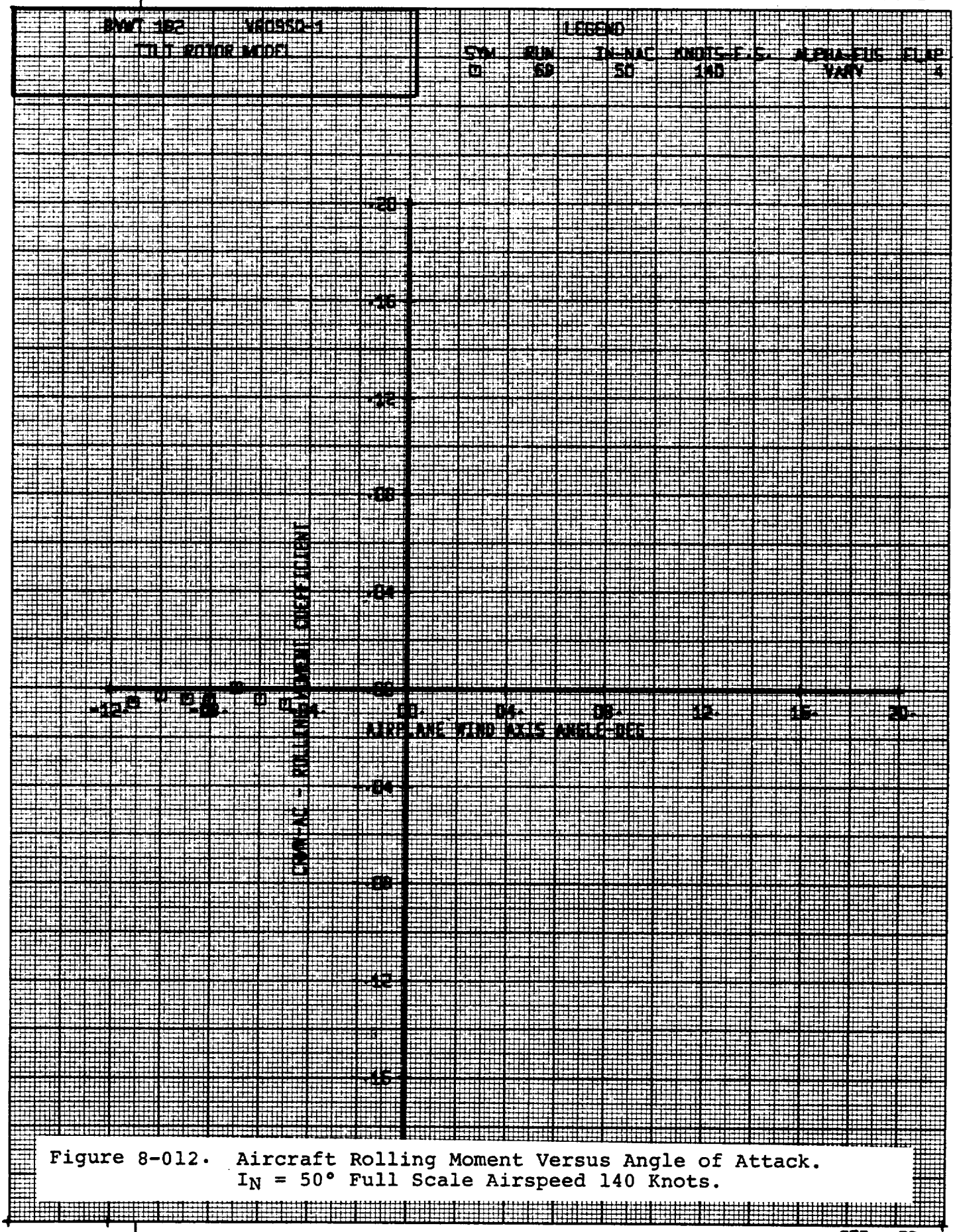


Figure 8-012. Aircraft Rolling Moment Versus Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

29
182

SET 29
BWWT 182

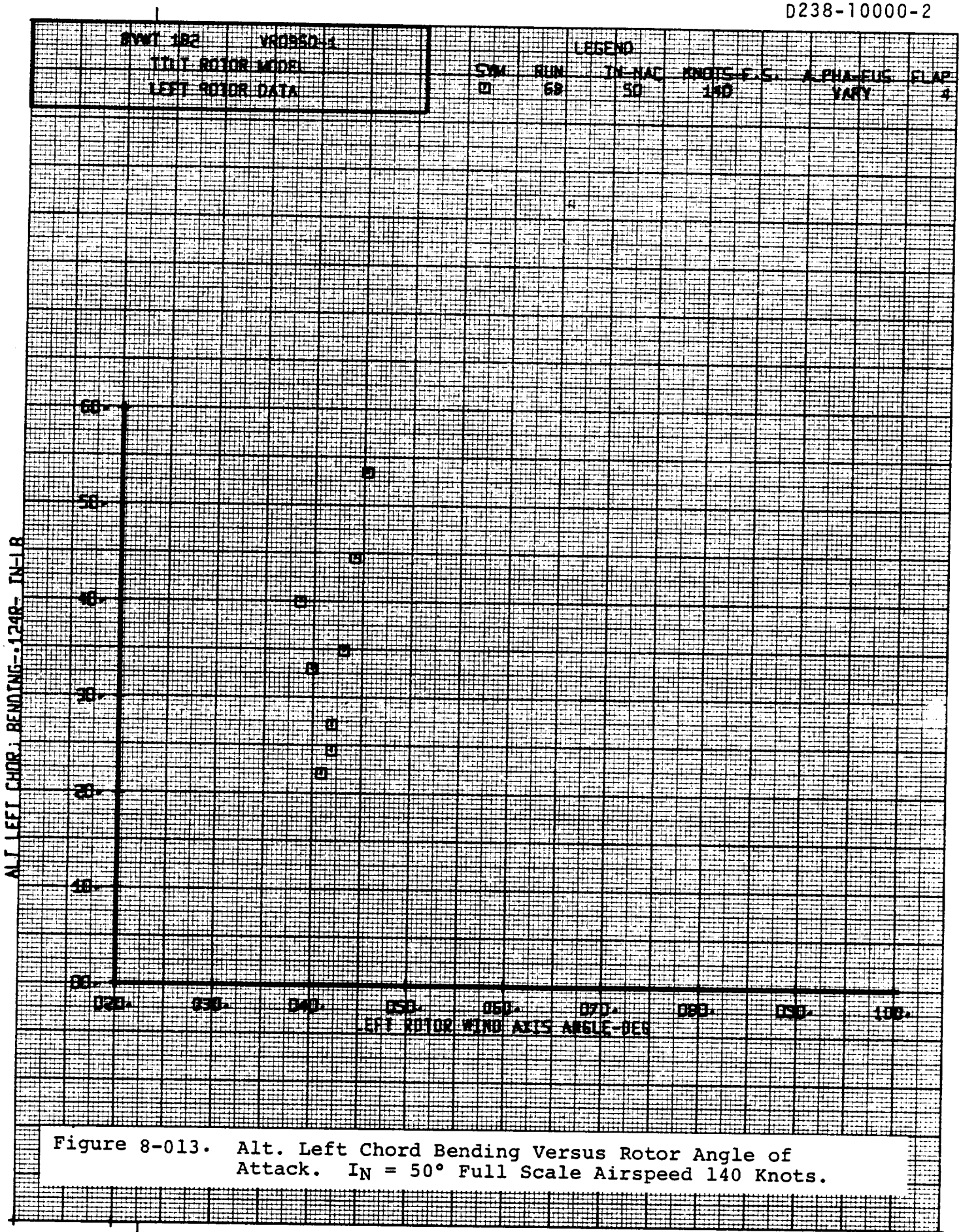


Figure 8-013. Alt. Left Chord Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

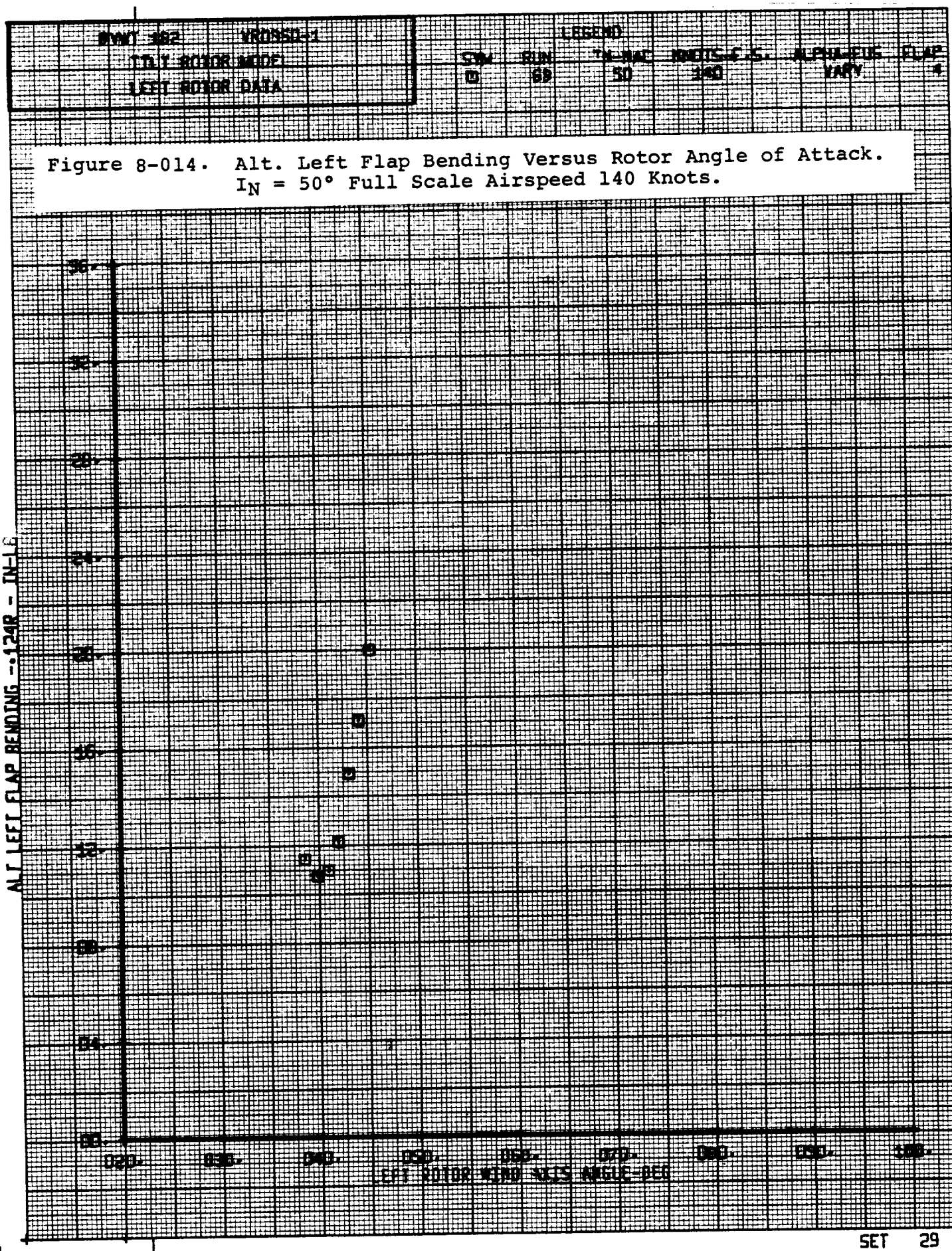


Figure 8-014. Alt. Left Flap Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

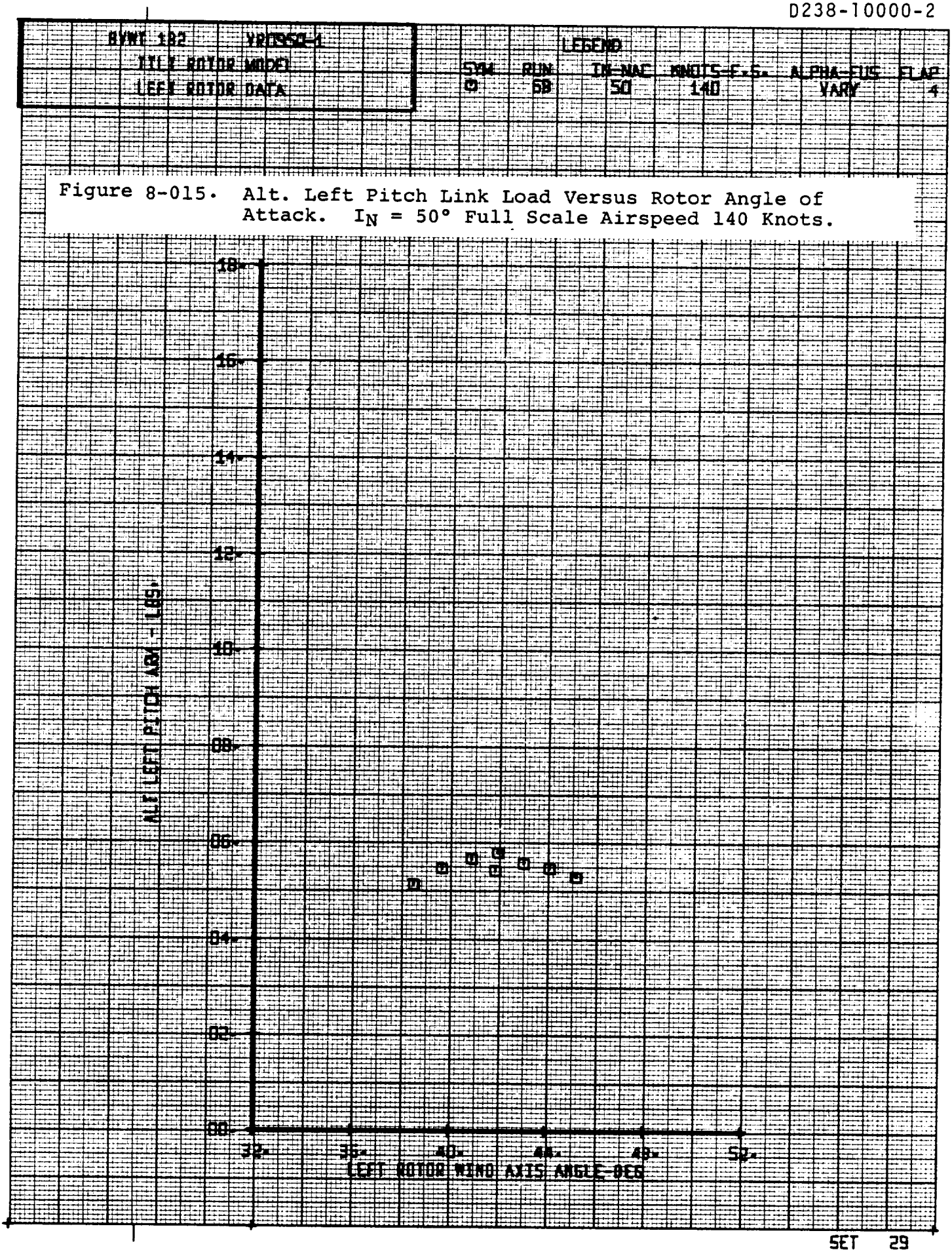


Figure 8-015. Alt. Left Pitch Link Load Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

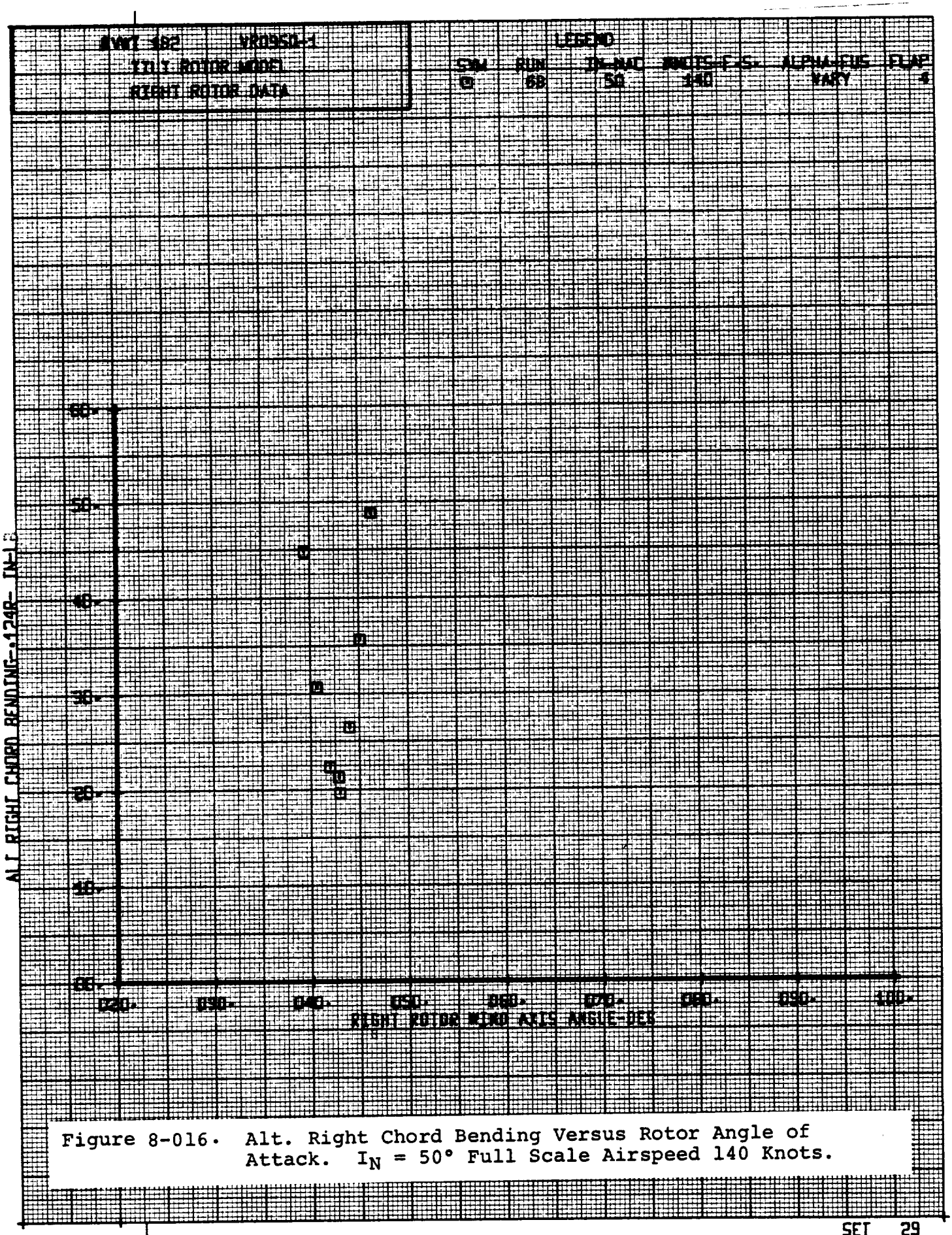


Figure 8-016. Alt. Right Chord Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

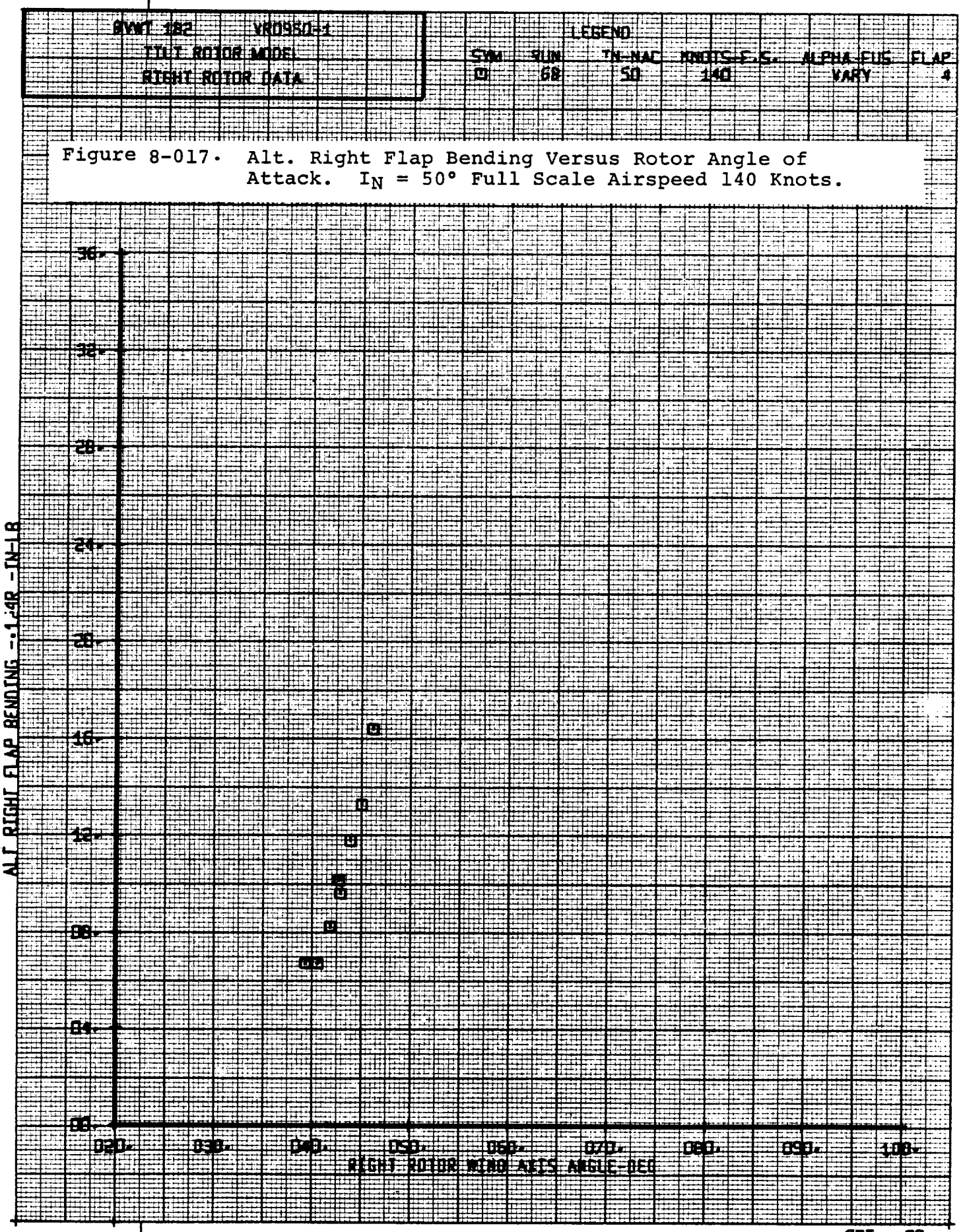


Figure 8-017. Alt. Right Flap Bending Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

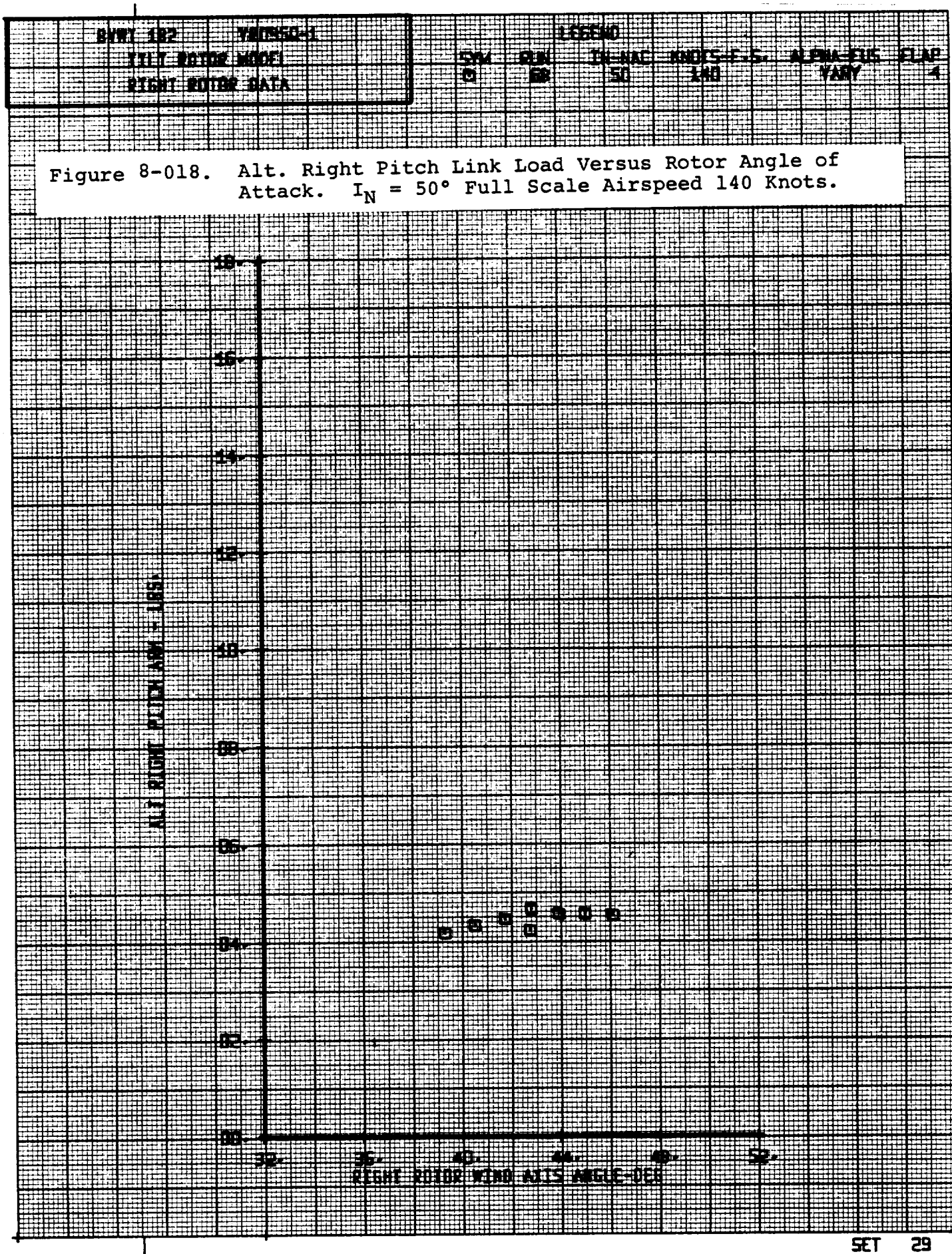


Figure 8-018. Alt. Right Pitch Link Load Versus Rotor Angle of Attack. I_N = 50° Full Scale Airspeed 140 Knots.

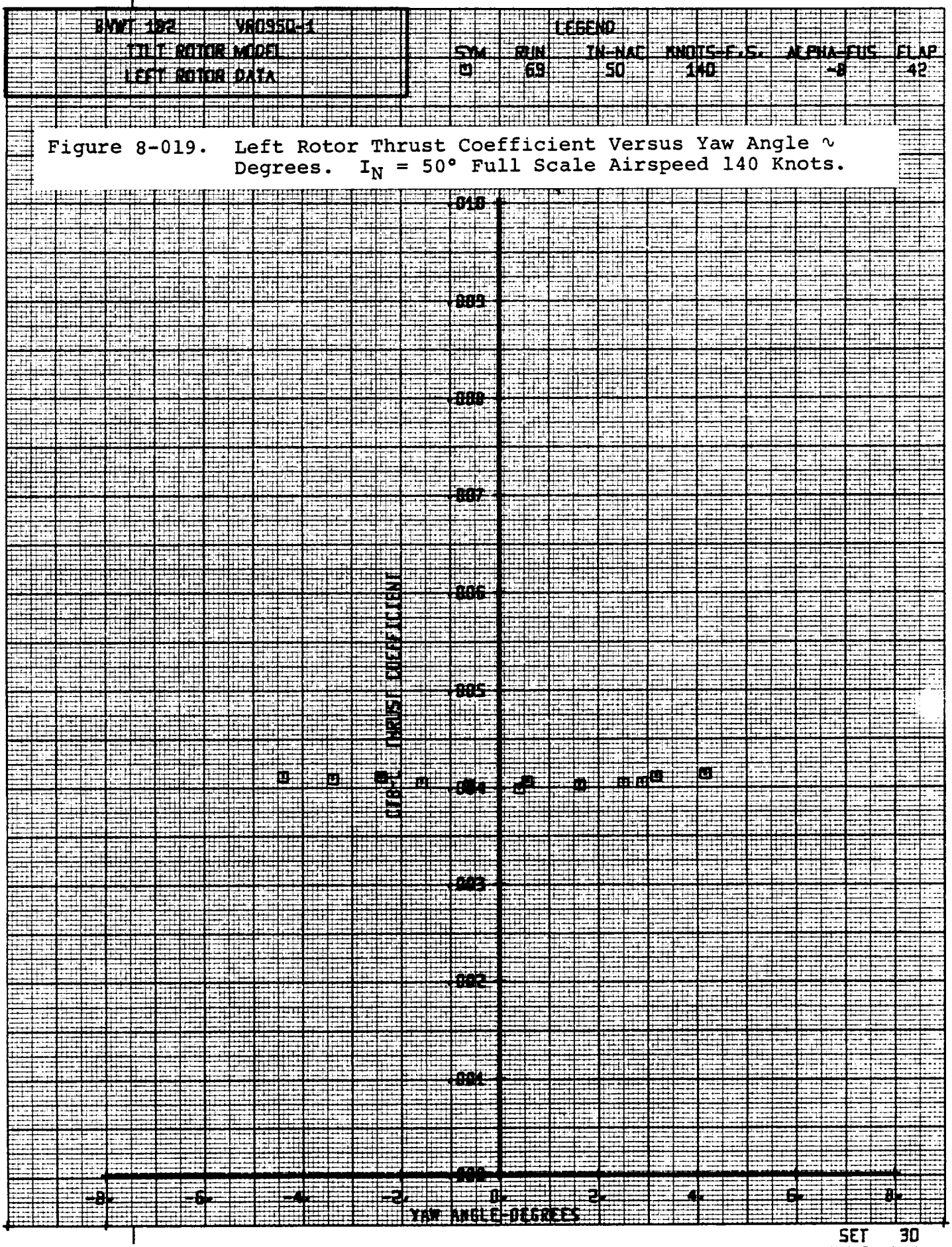


Figure 8-019. Left Rotor Thrust Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

ET 30
W 182

SET 30
BVWT 182

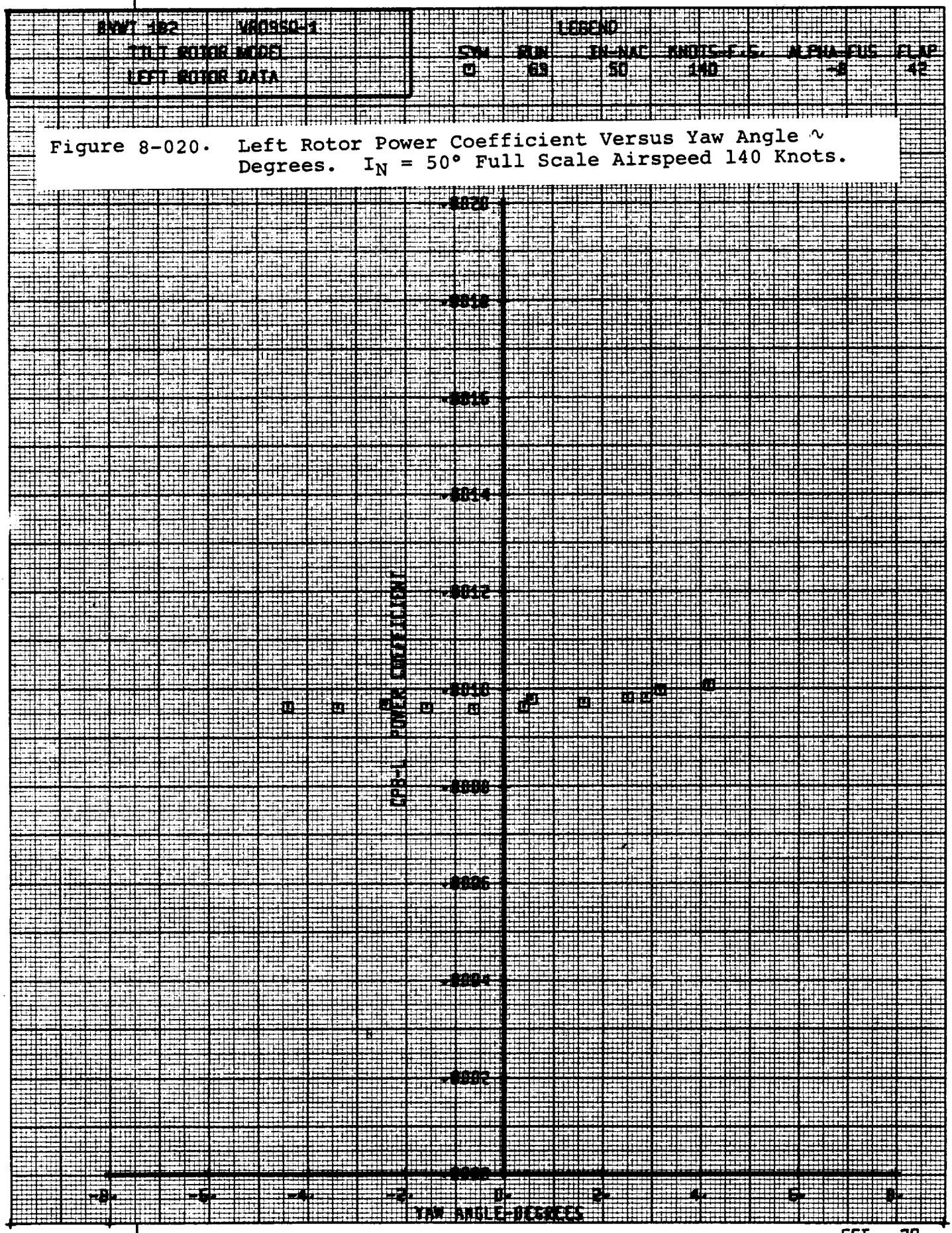


Figure 8-020. Left Rotor Power Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

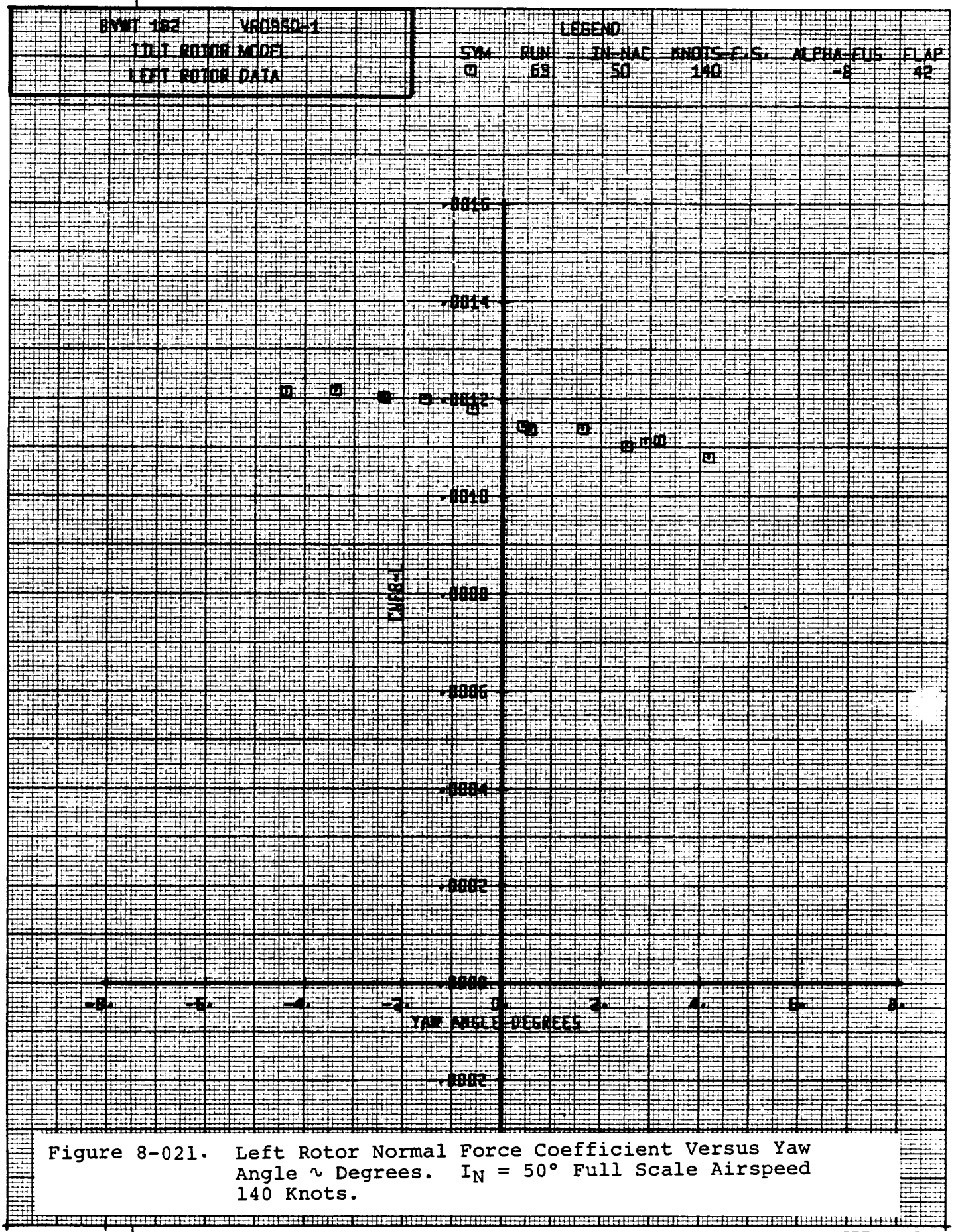


Figure 8-021. Left Rotor Normal Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

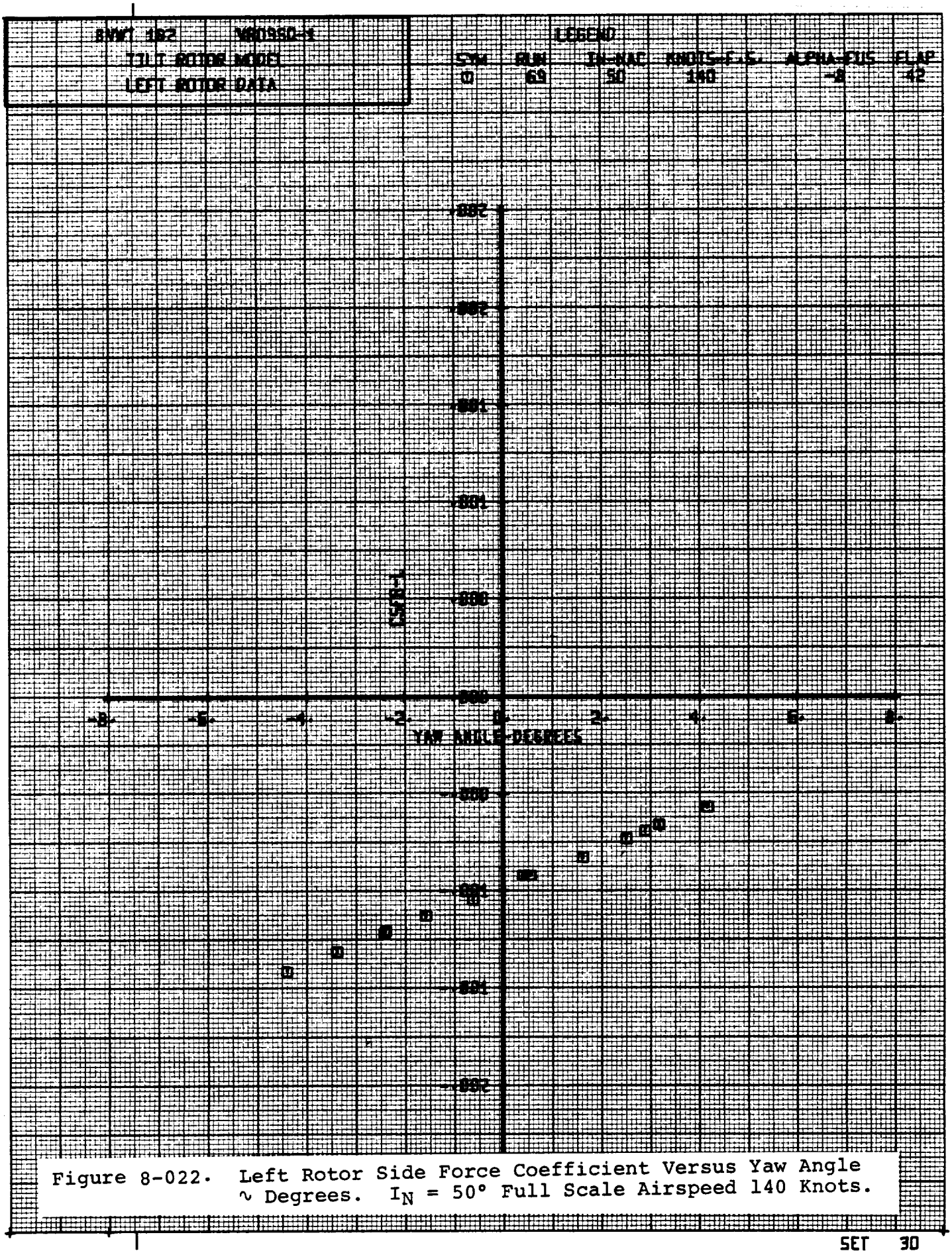


Figure 8-022. Left Rotor Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

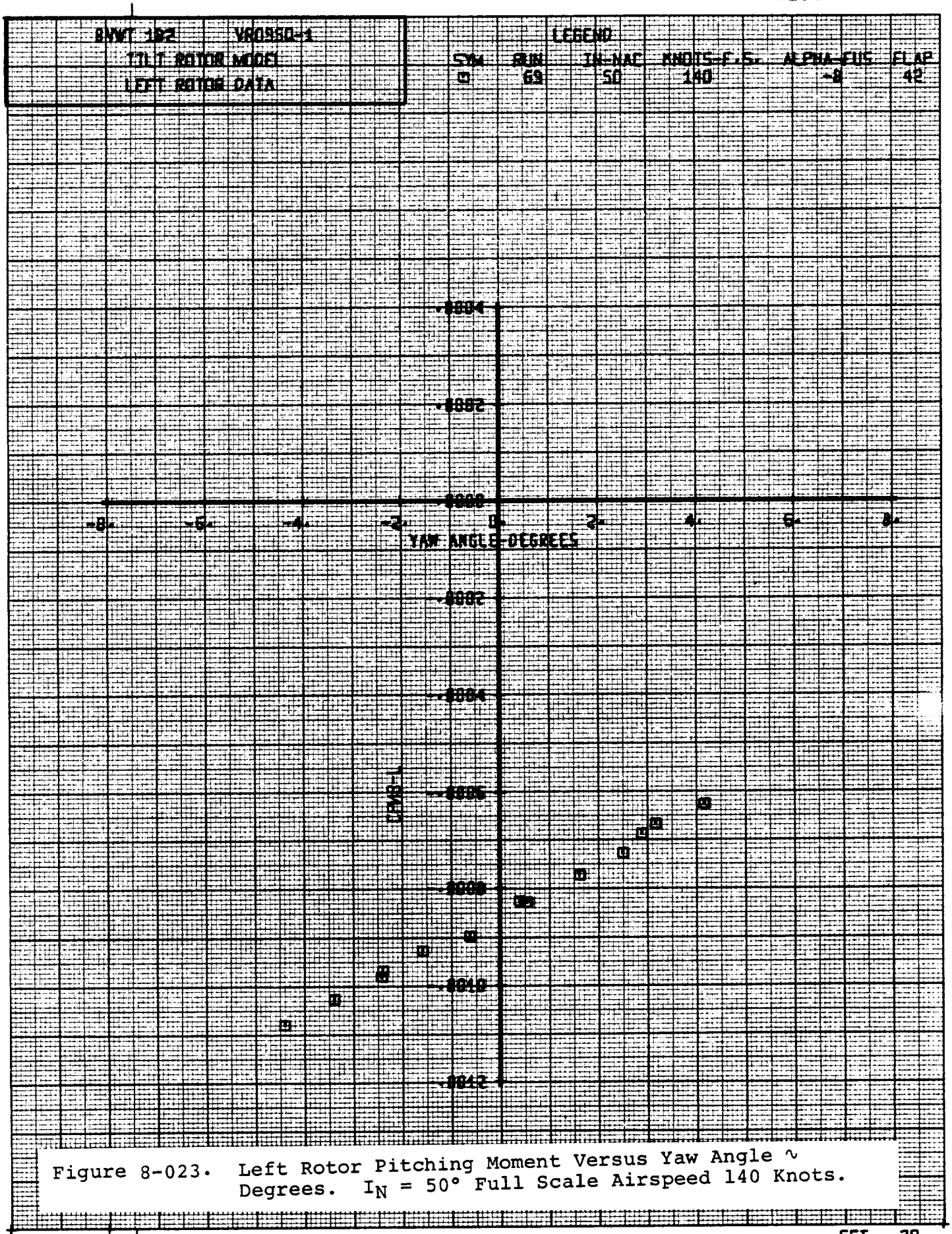


Figure 8-023. Left Rotor Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

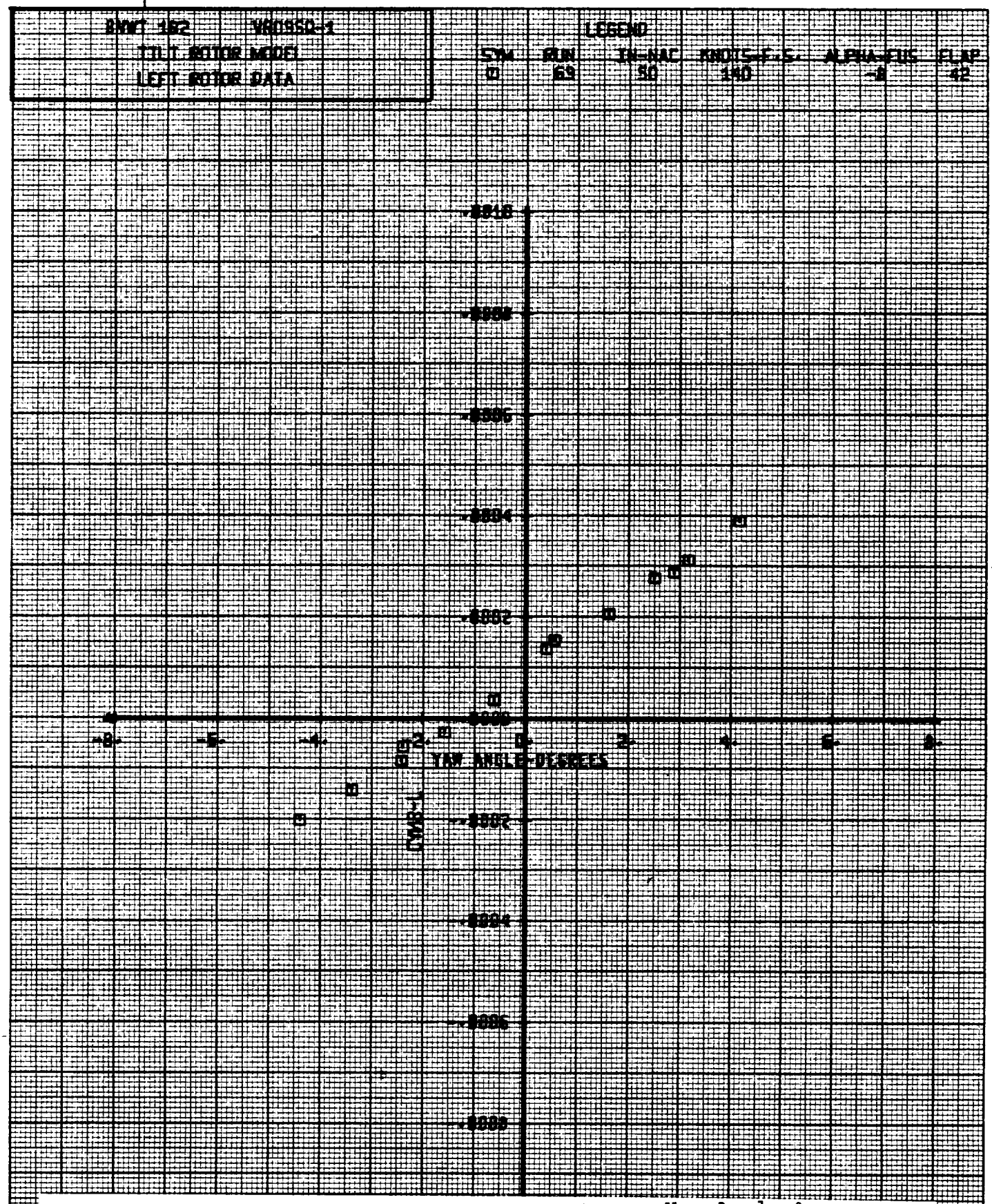


Figure 8-024. Left Rotor Yawing Moment Versus Yaw Angle ~ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

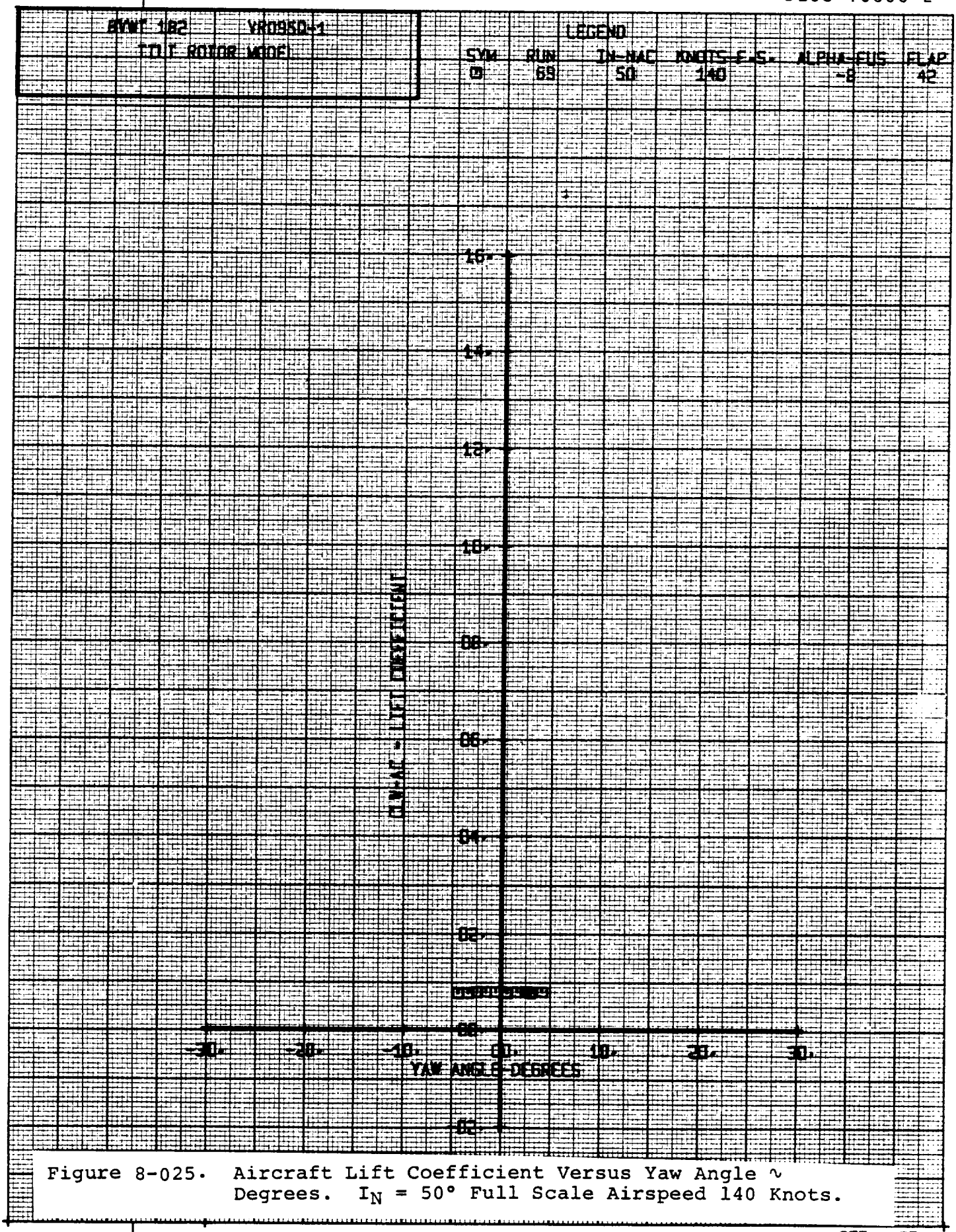


Figure 8-025. Aircraft Lift Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

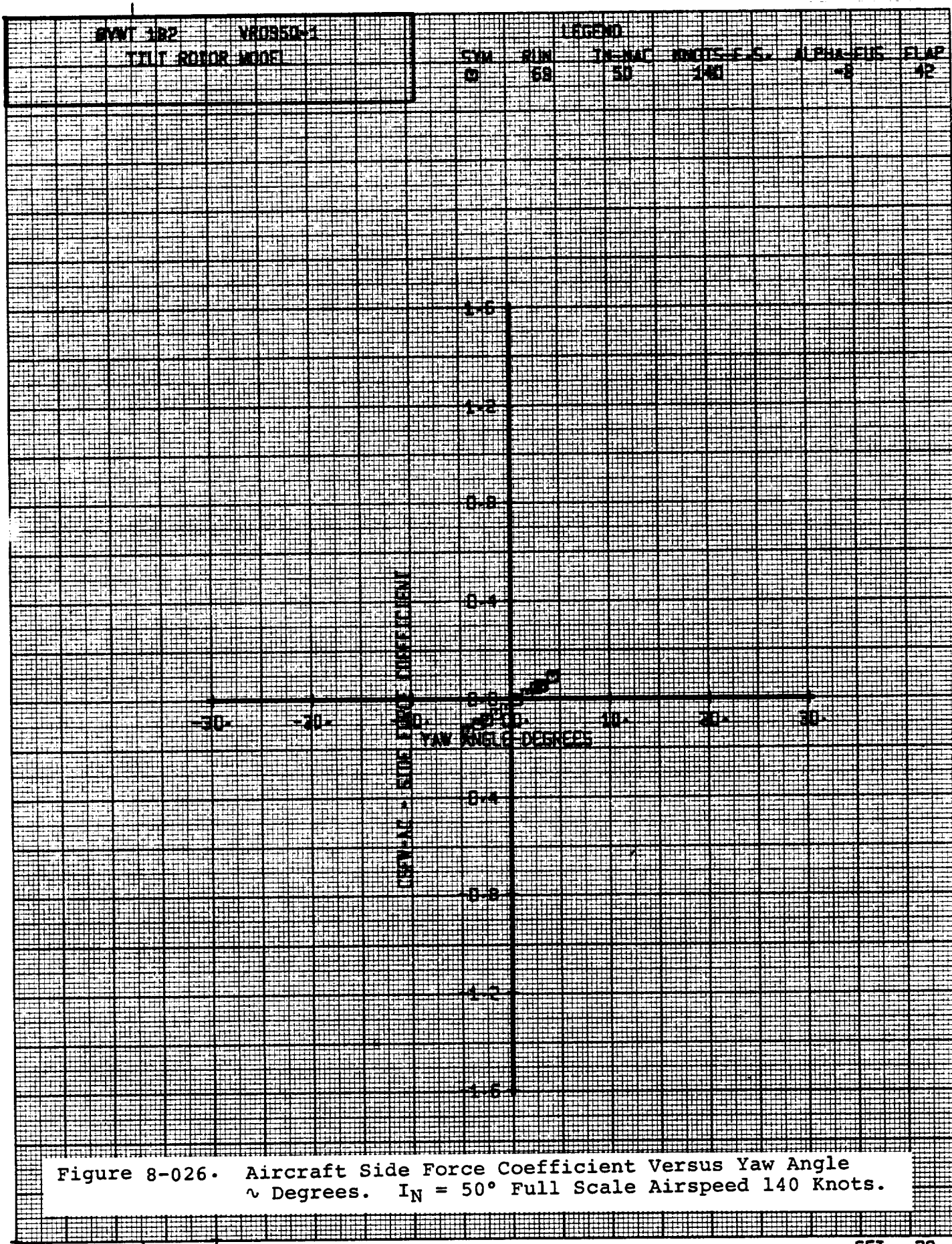


Figure 8-026. Aircraft Side Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

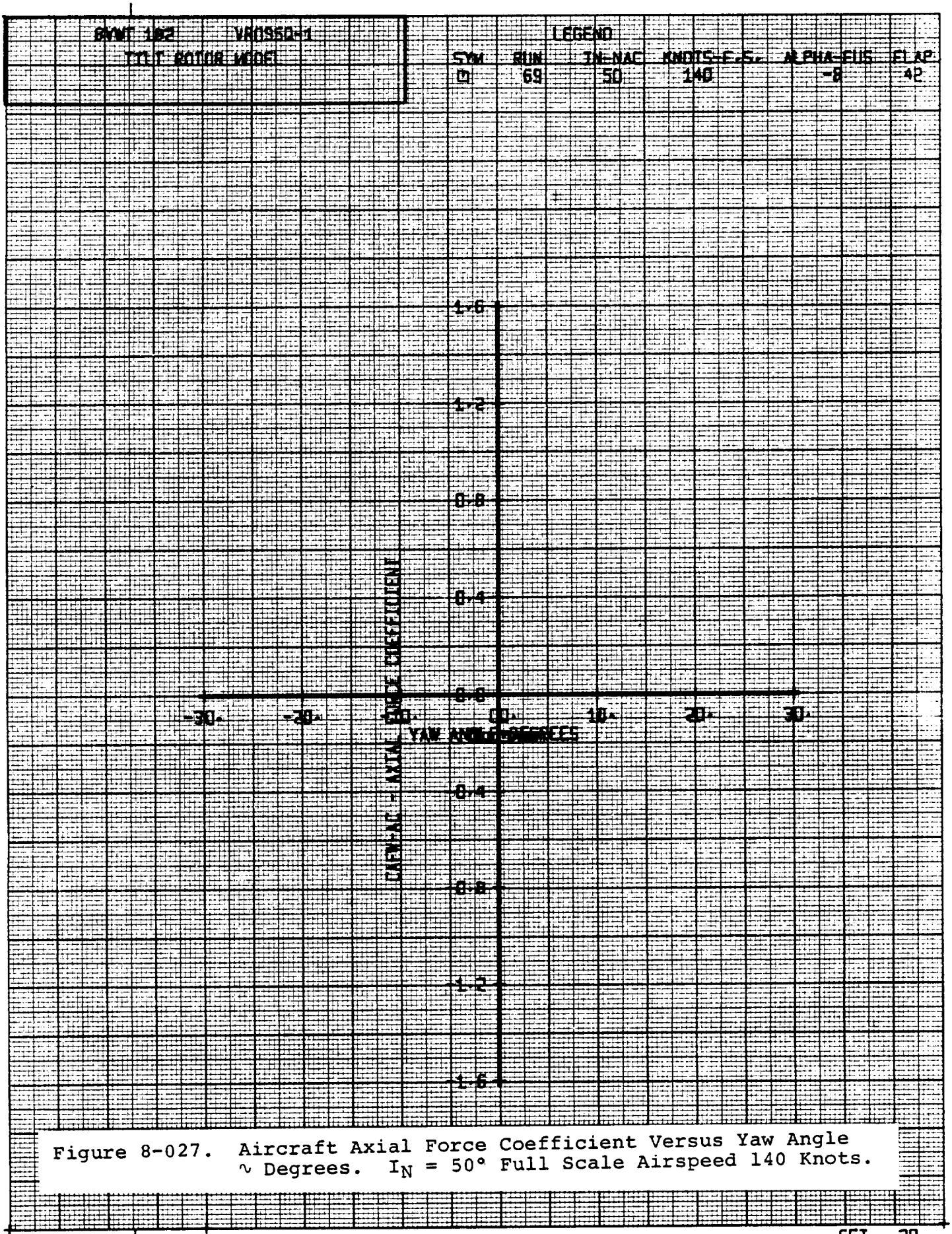


Figure 8-027. Aircraft Axial Force Coefficient Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

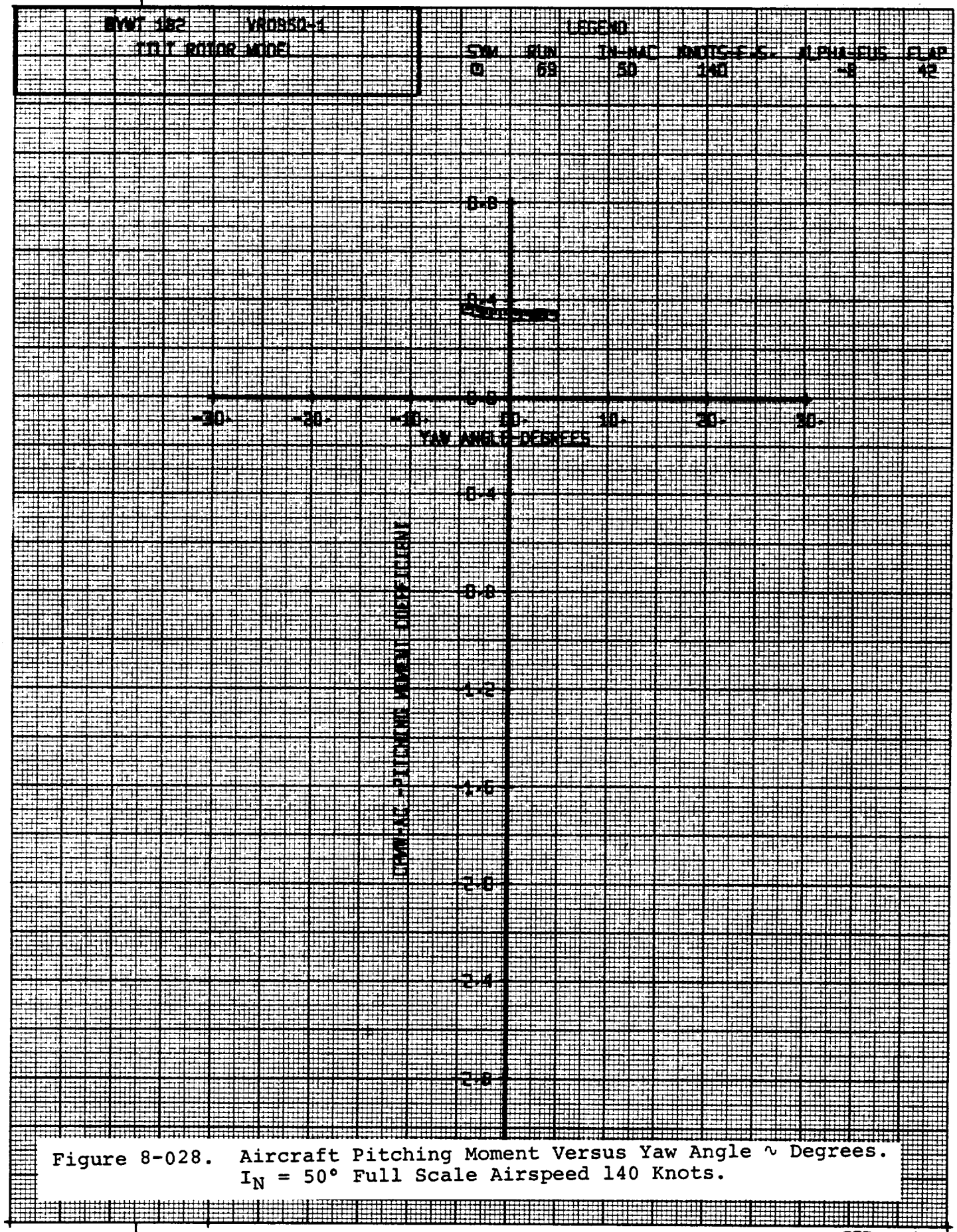


Figure 8-028. Aircraft Pitching Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

30
182

SET 30
BVWT 182

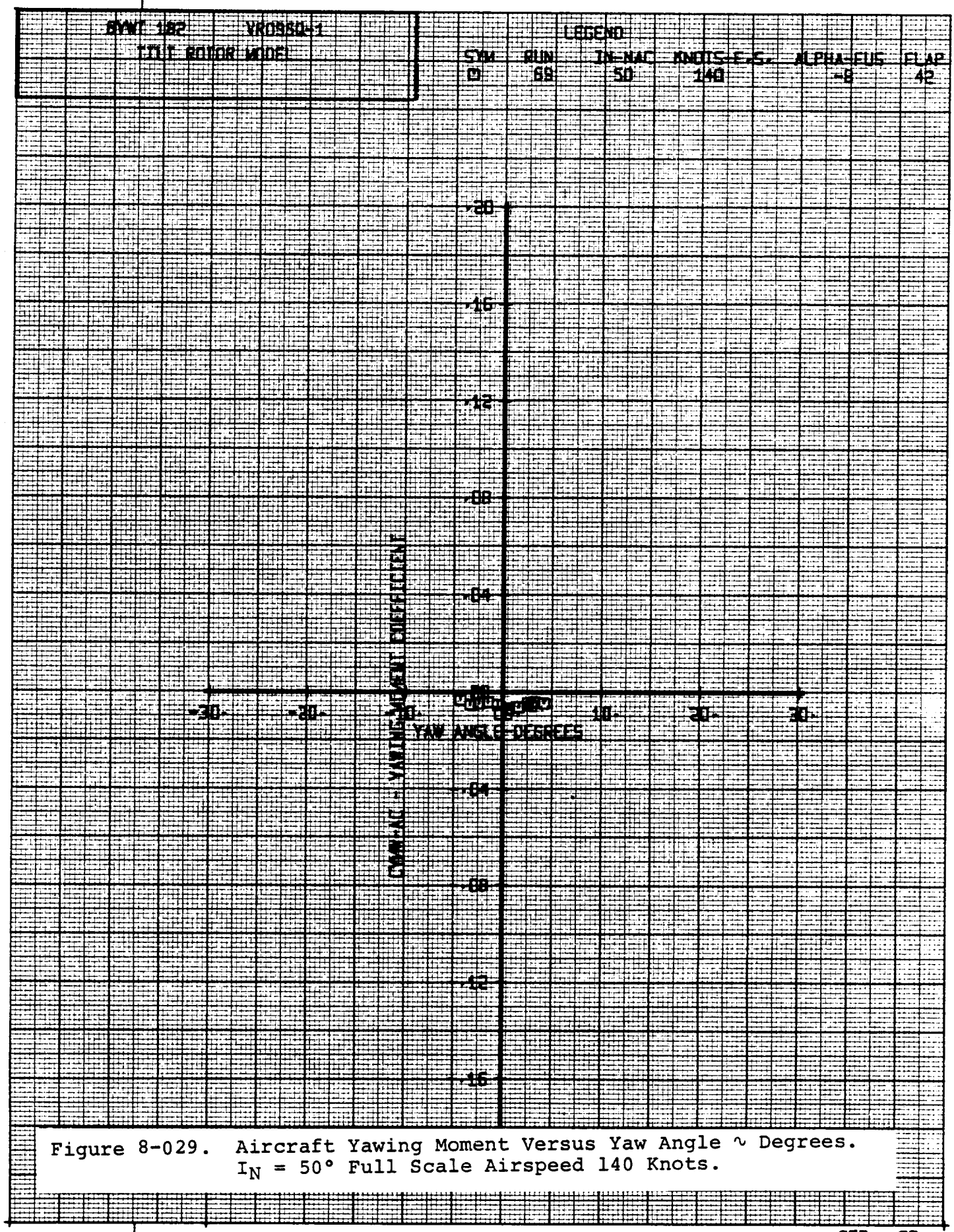


Figure 8-029. Aircraft Yawing Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

ET 30
W 182

SET 30
BVWT 182

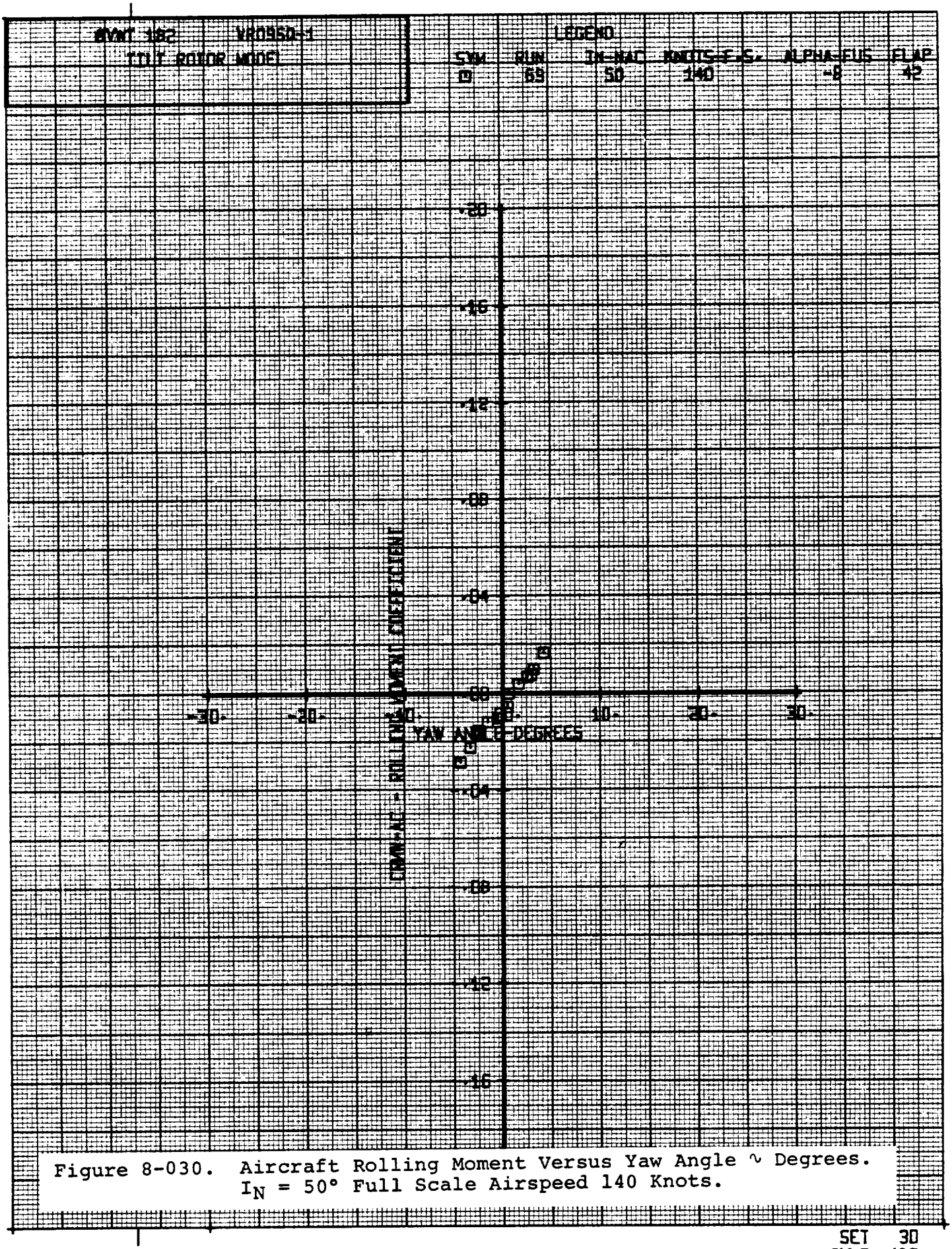


Figure 8-030. Aircraft Rolling Moment Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

30
182

SET 30
BVWT 182

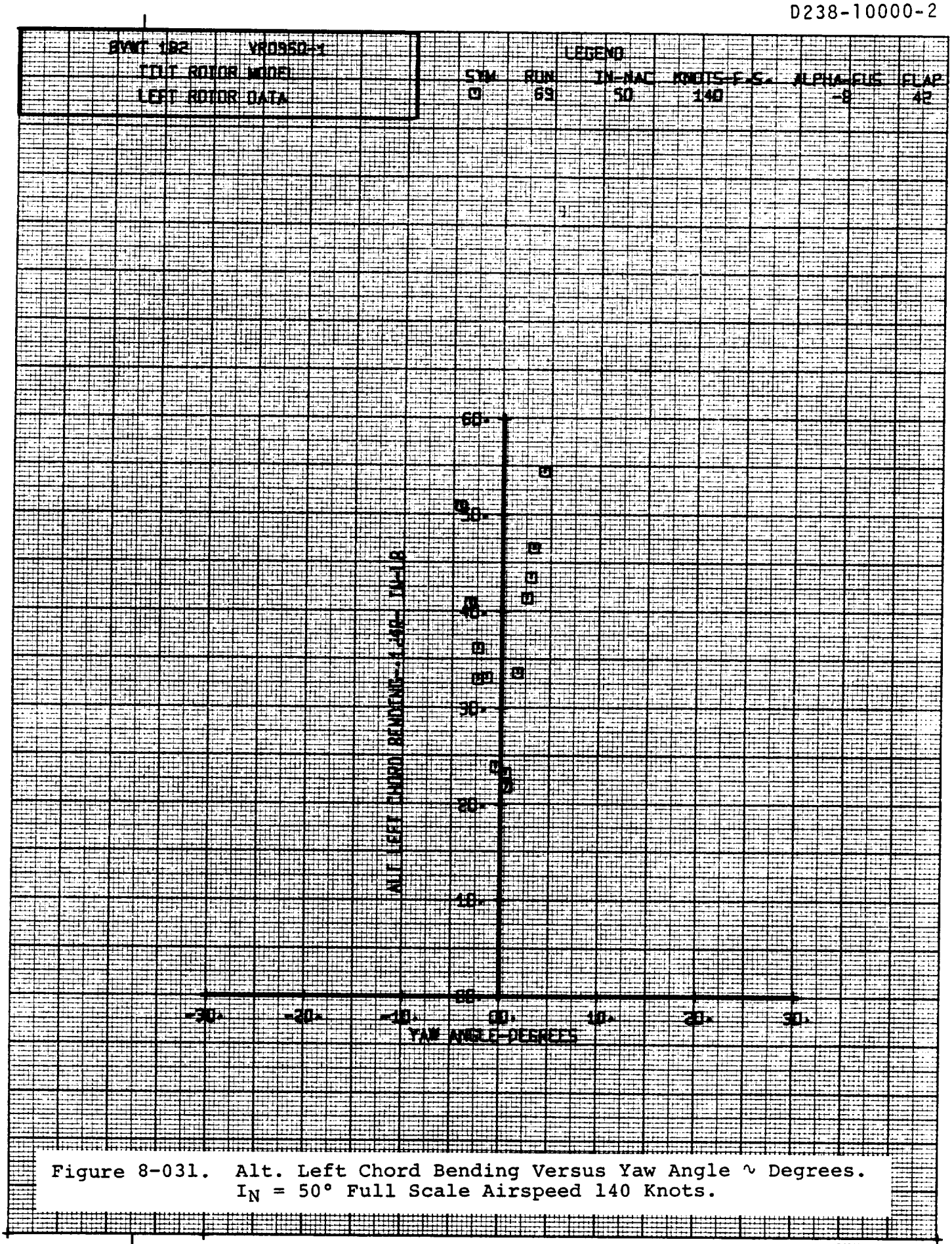


Figure 8-031. Alt. Left Chord Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

SET 30
BVWT 182

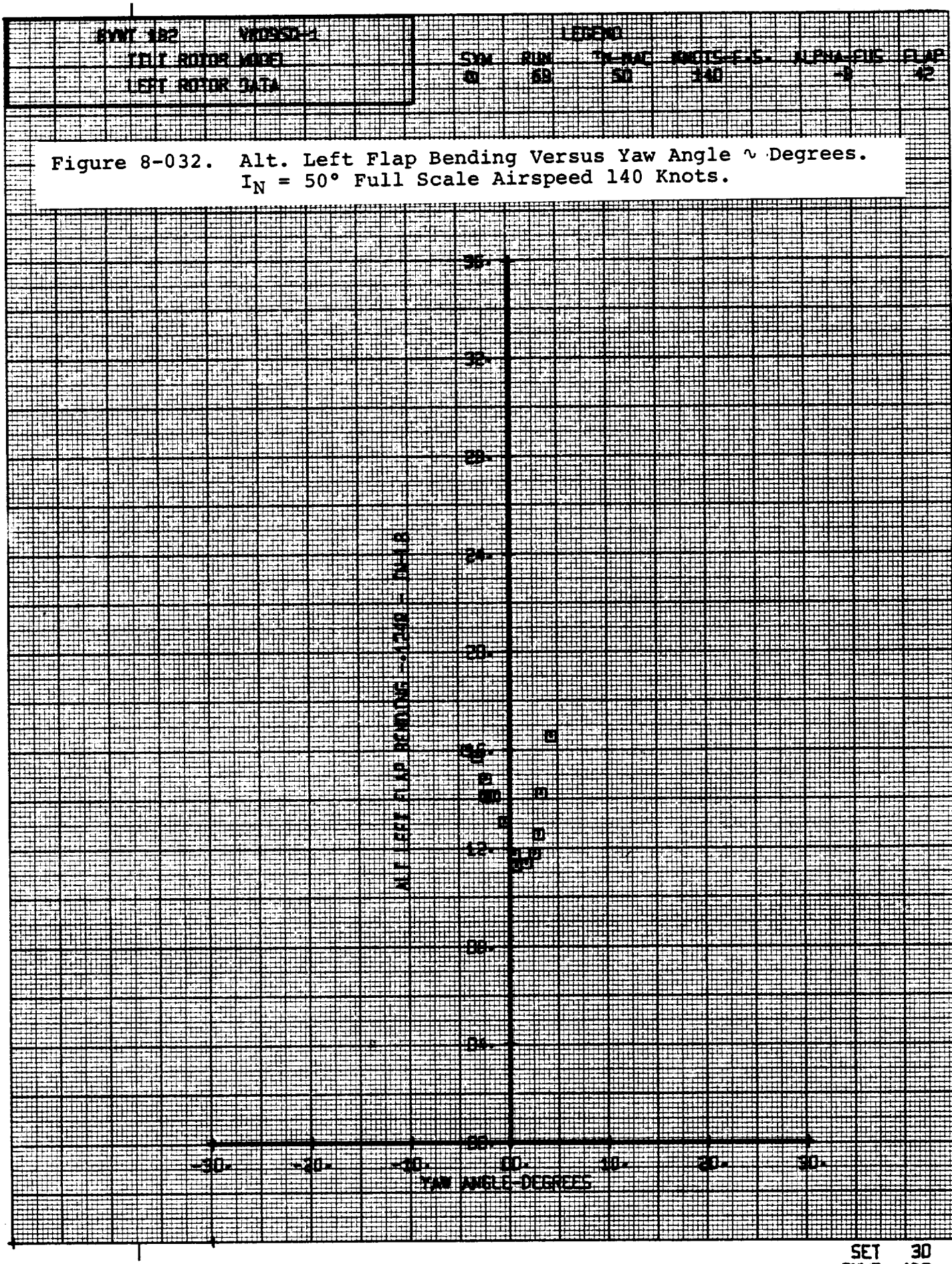


Figure 8-032. Alt. Left Flap Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

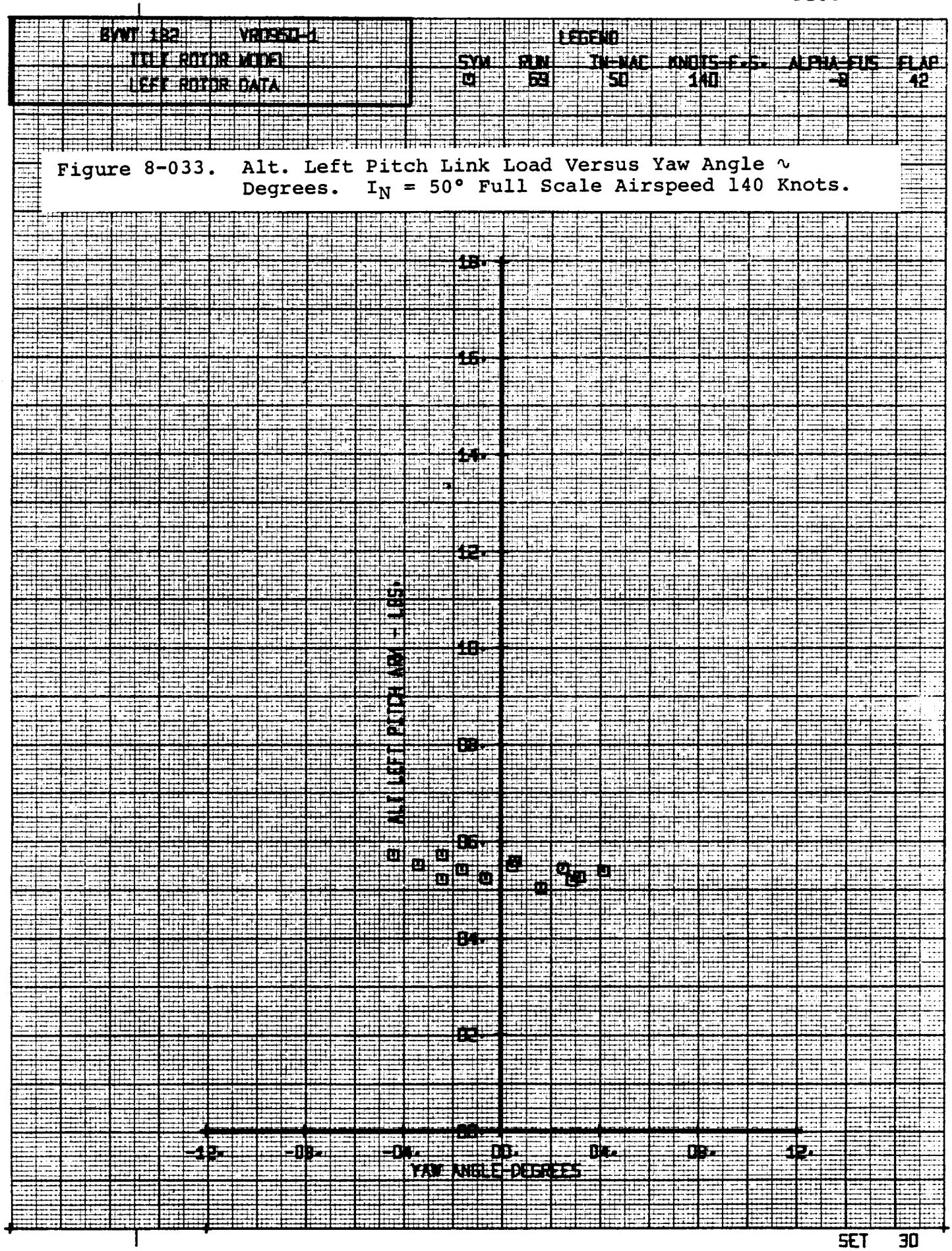


Figure 8-033. Alt. Left Pitch Link Load Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

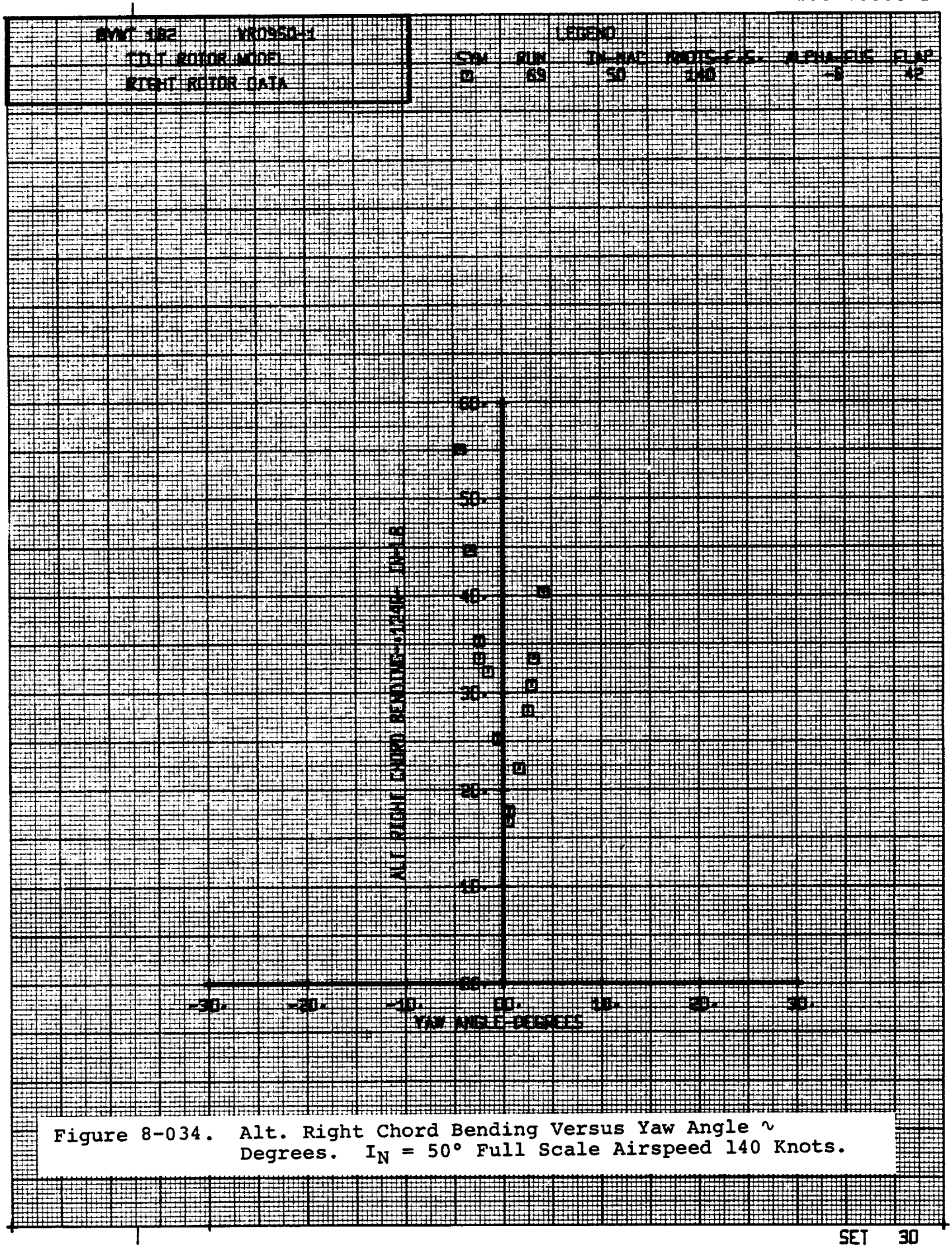


Figure 8-034. Alt. Right Chord Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

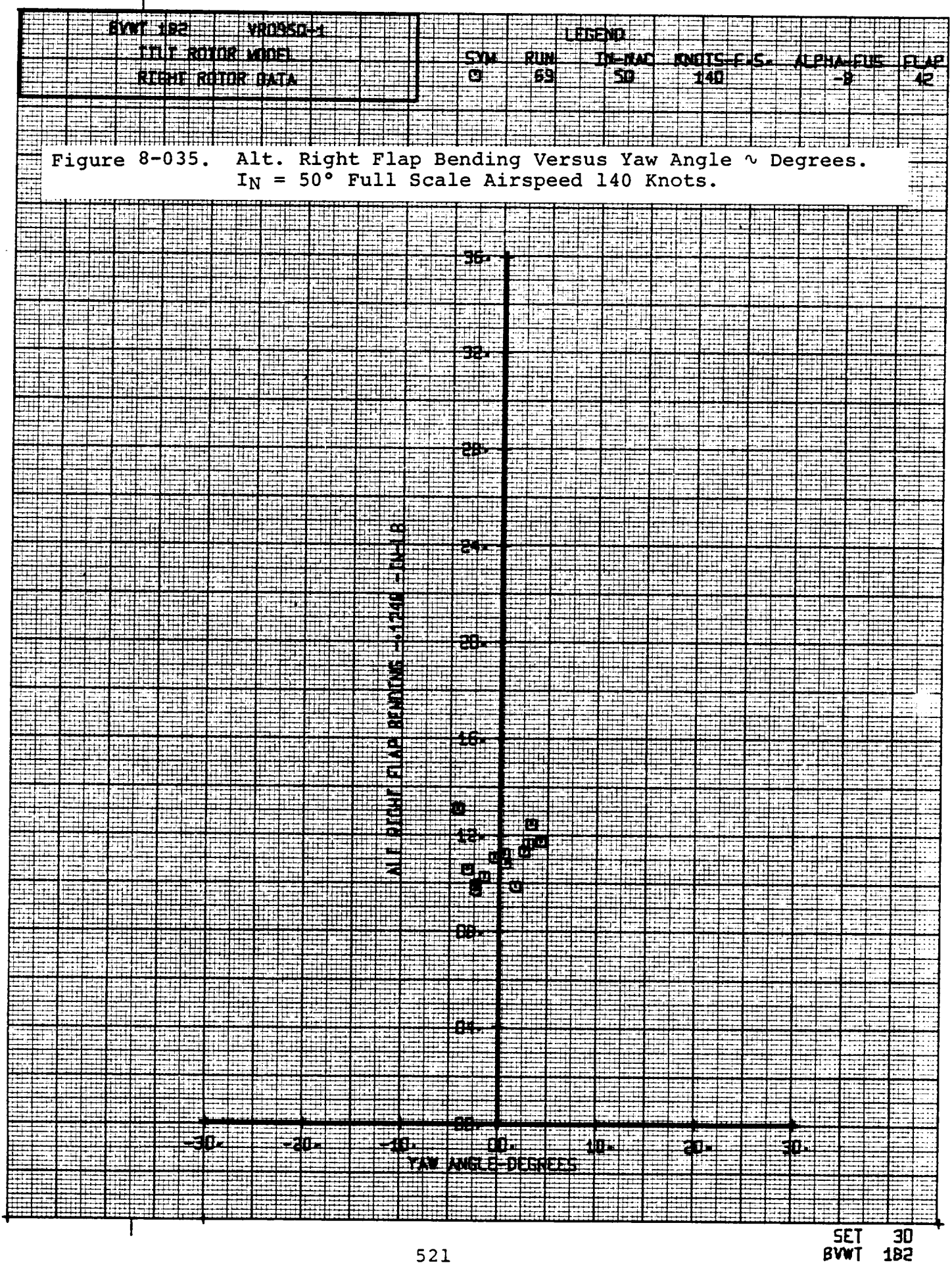


Figure 8-035. Alt. Right Flap Bending Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

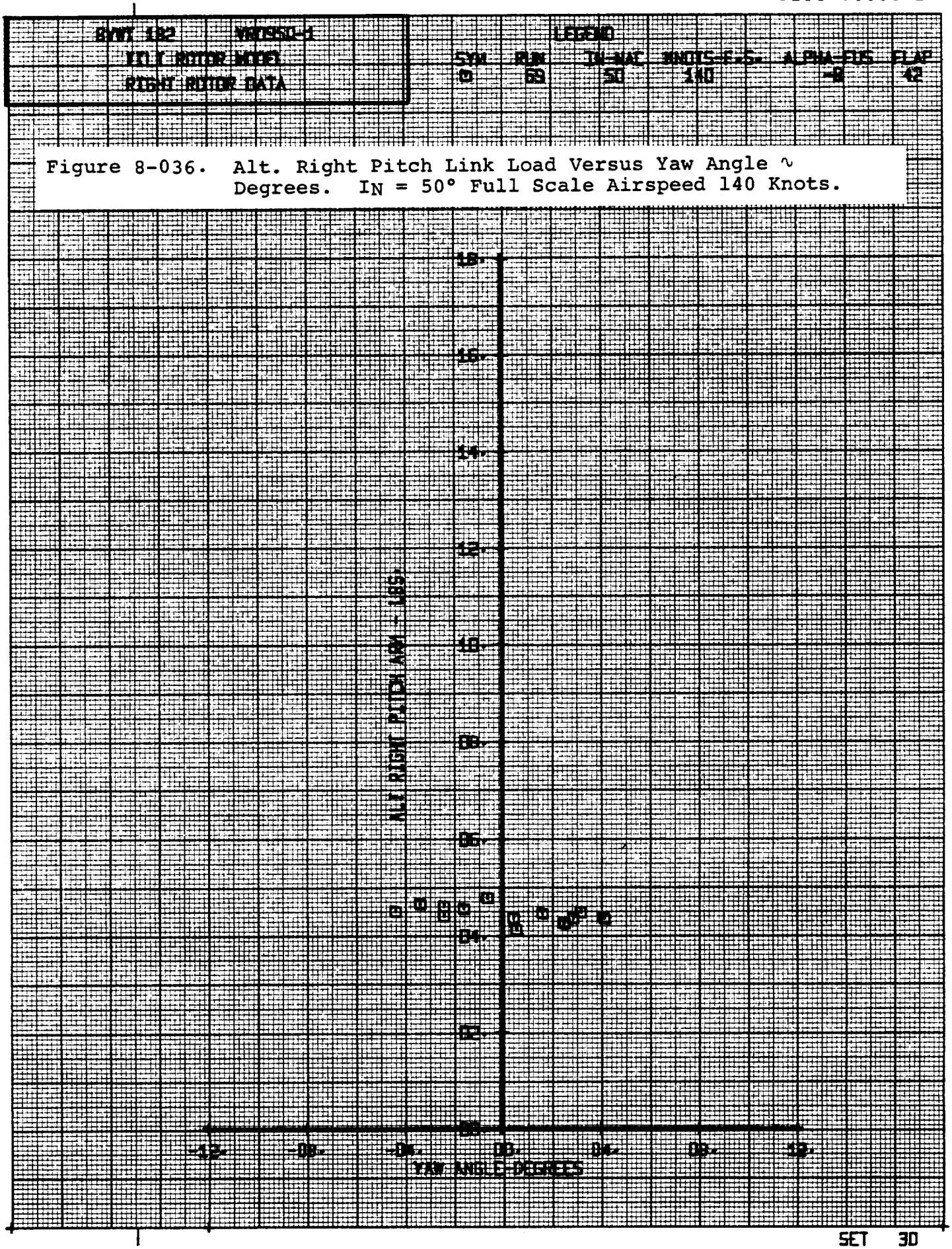


Figure 8-036. Alt. Right Pitch Link Load Versus Yaw Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

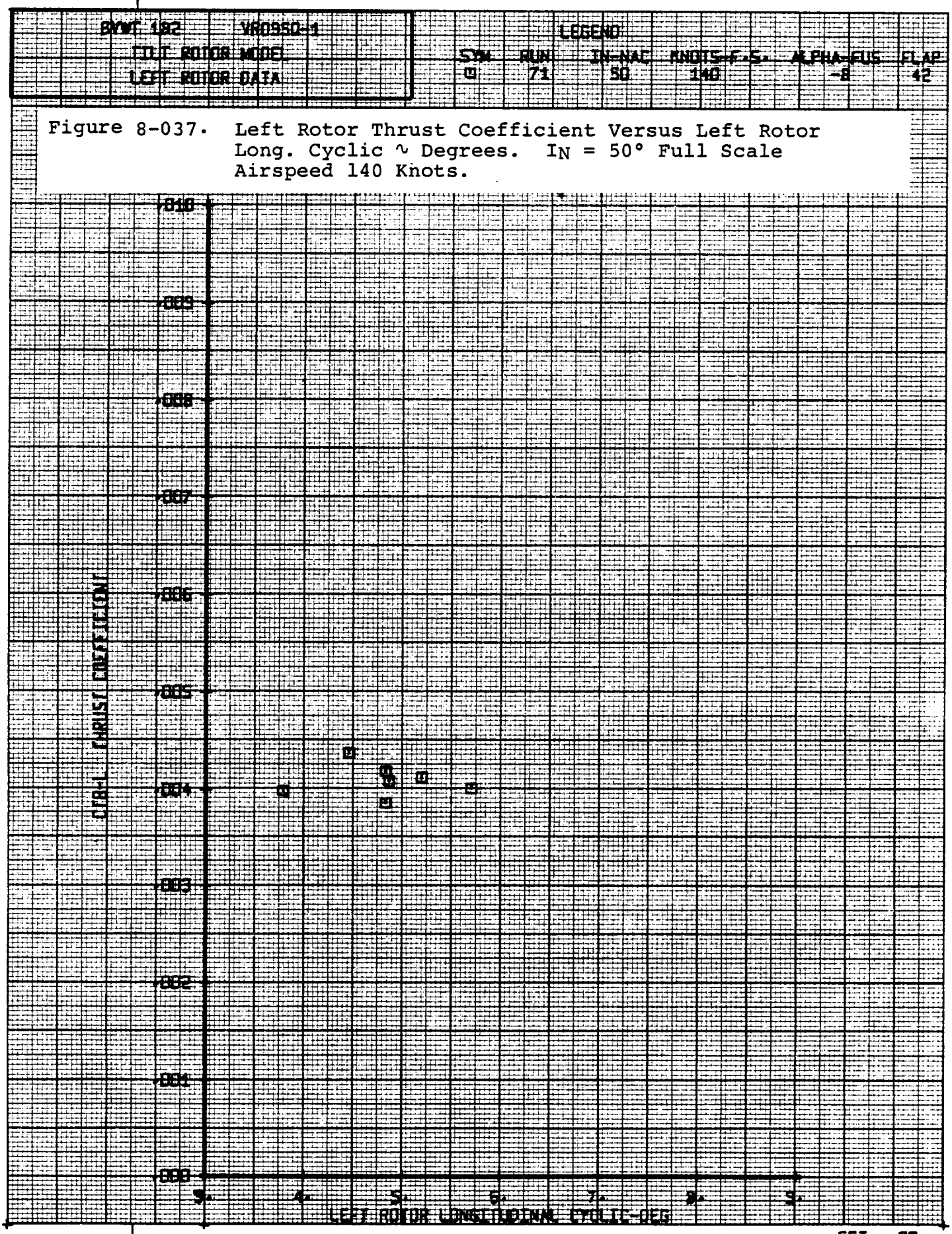


Figure 8-037. Left Rotor Thrust Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

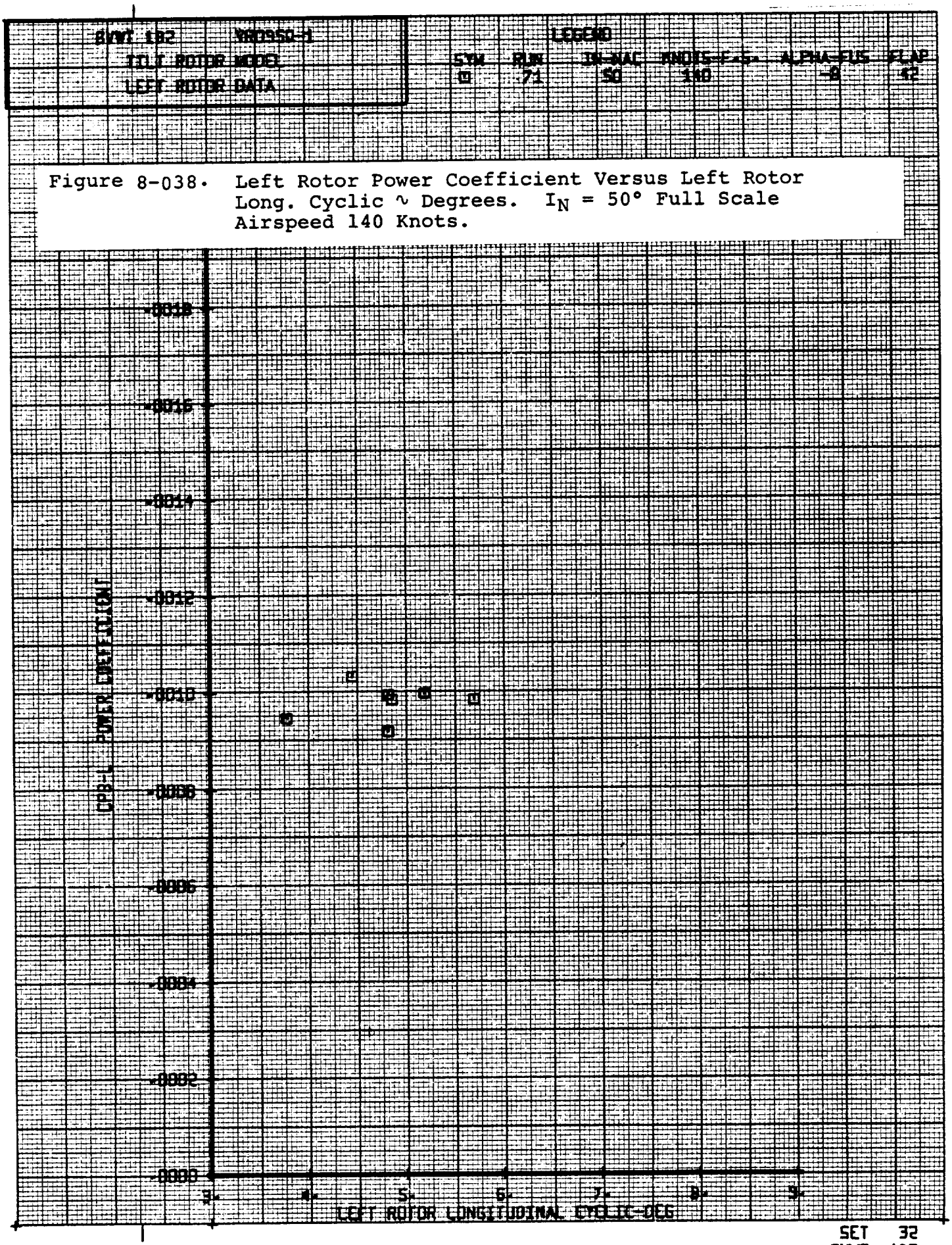


Figure 8-038. Left Rotor Power Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

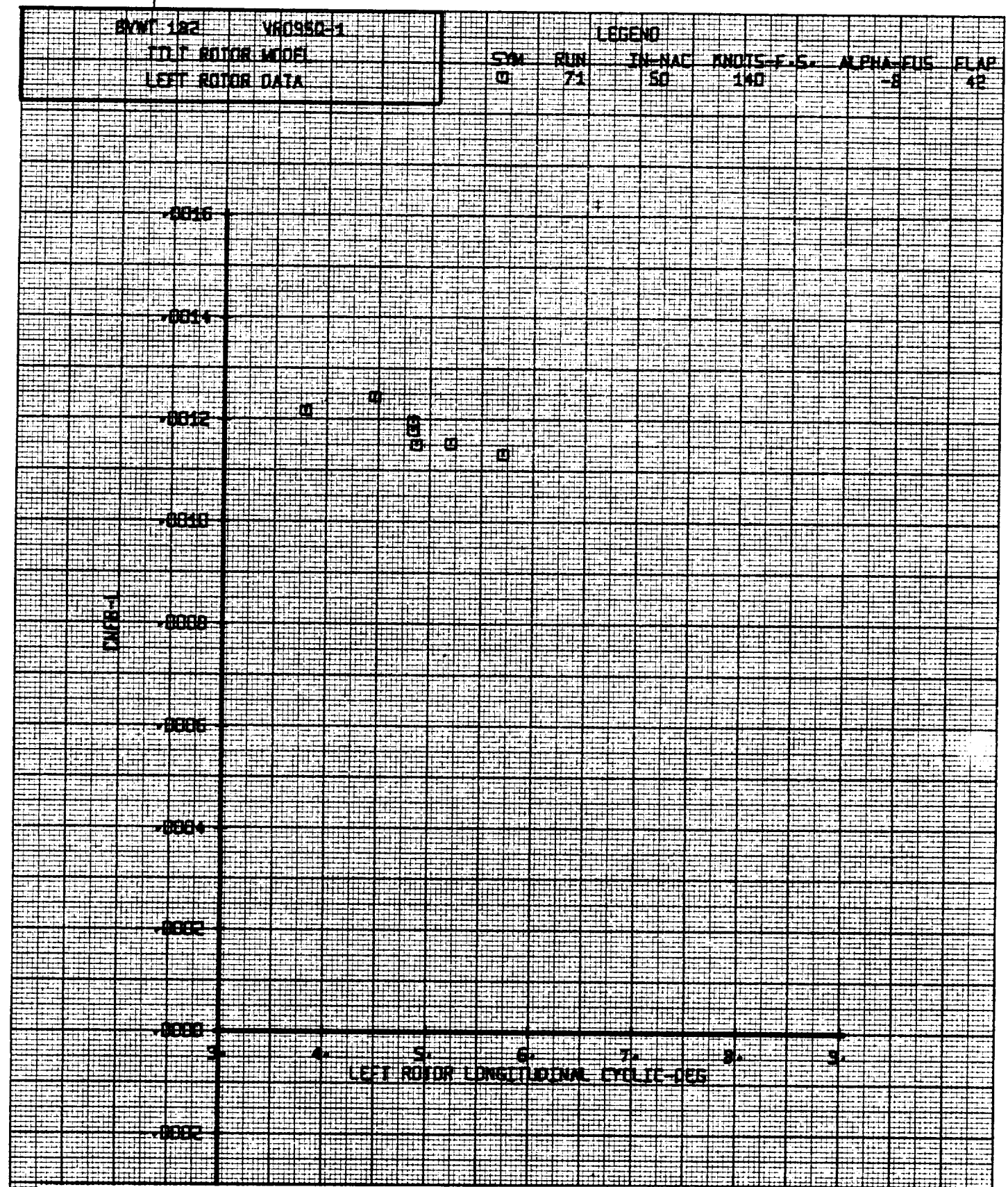


Figure 8-039. Left Rotor Normal Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

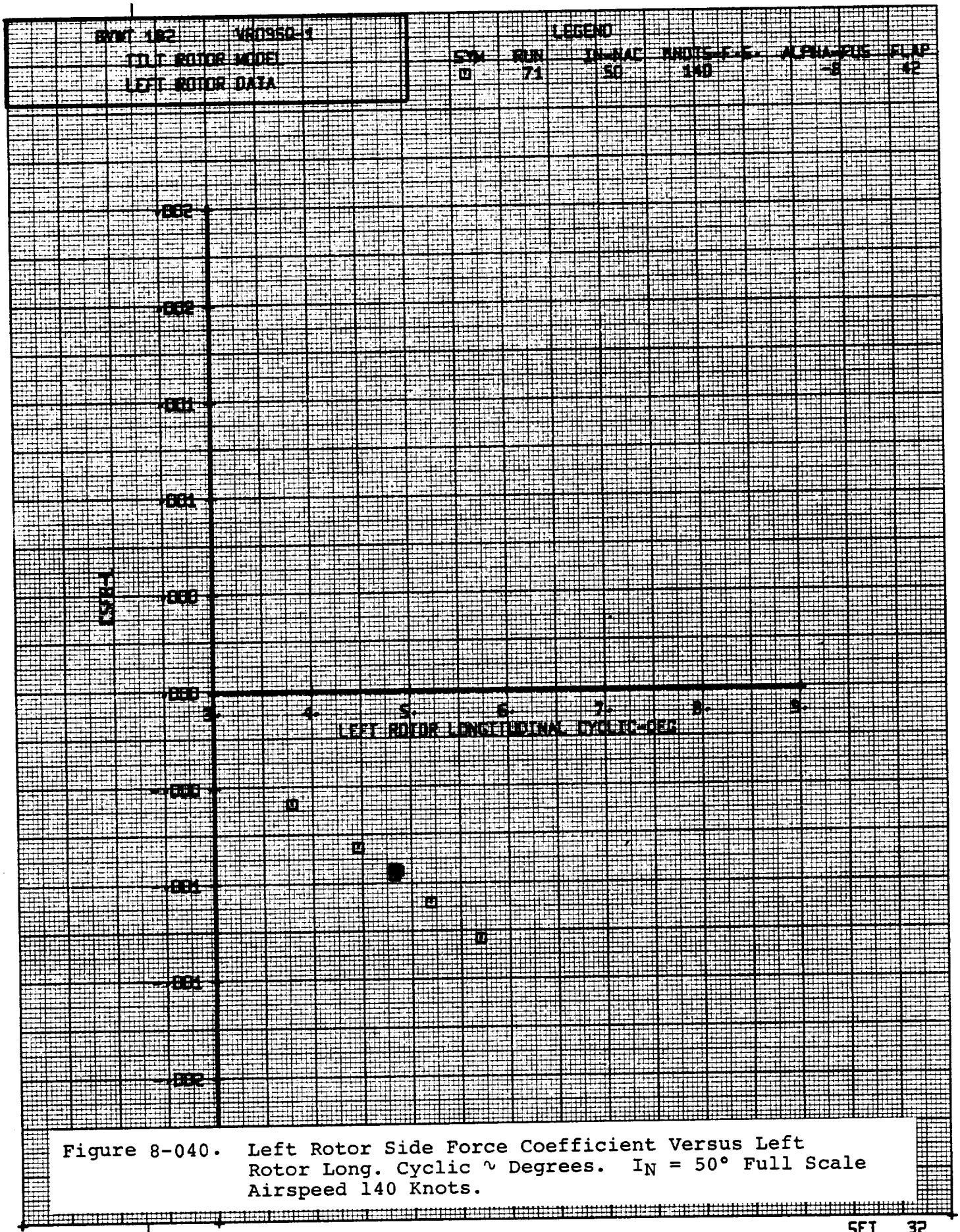


Figure 8-040. Left Rotor Side Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

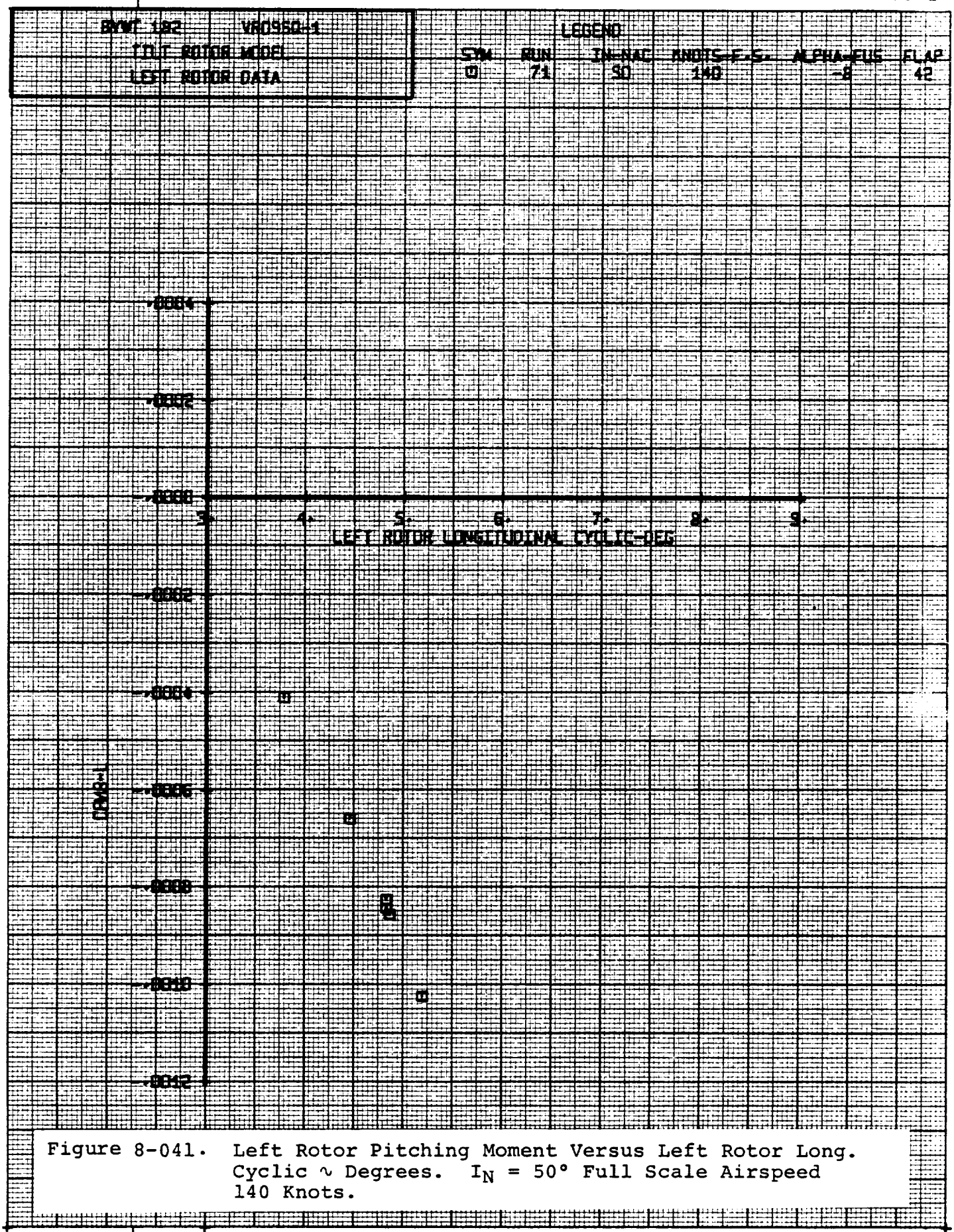


Figure 8-041. Left Rotor Pitching Moment Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

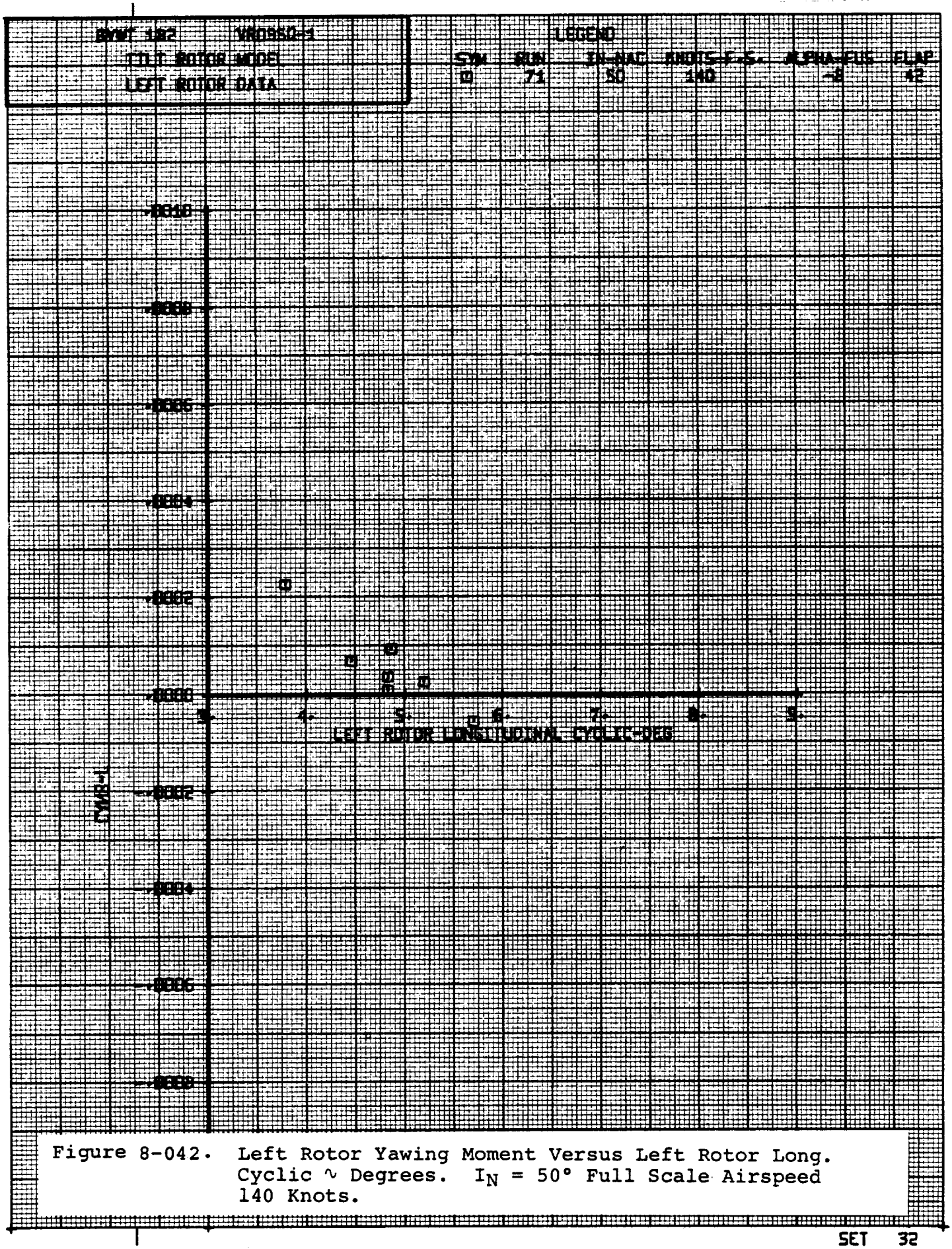


Figure 8-042. Left Rotor Yawing Moment Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

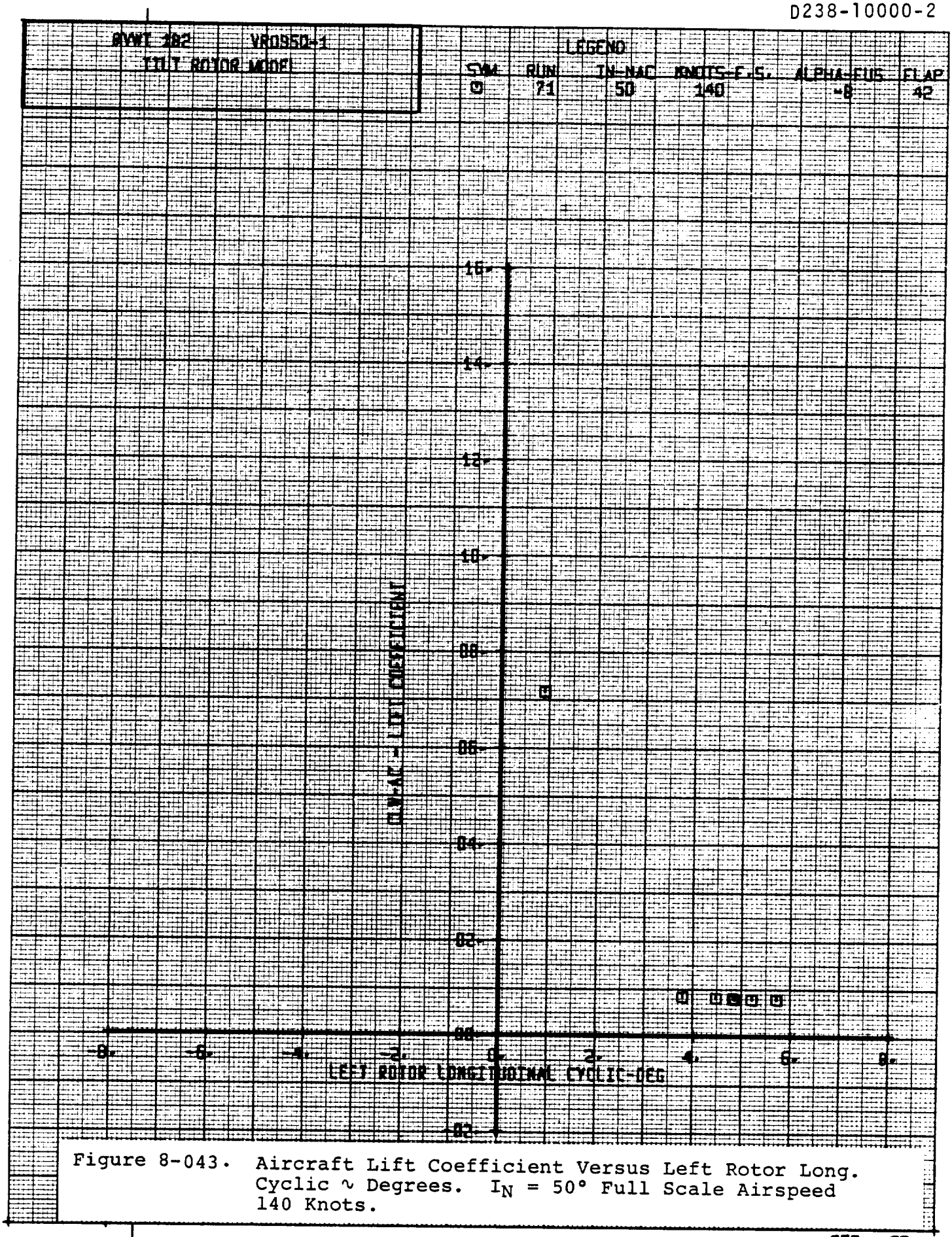


Figure 8-043. Aircraft Lift Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

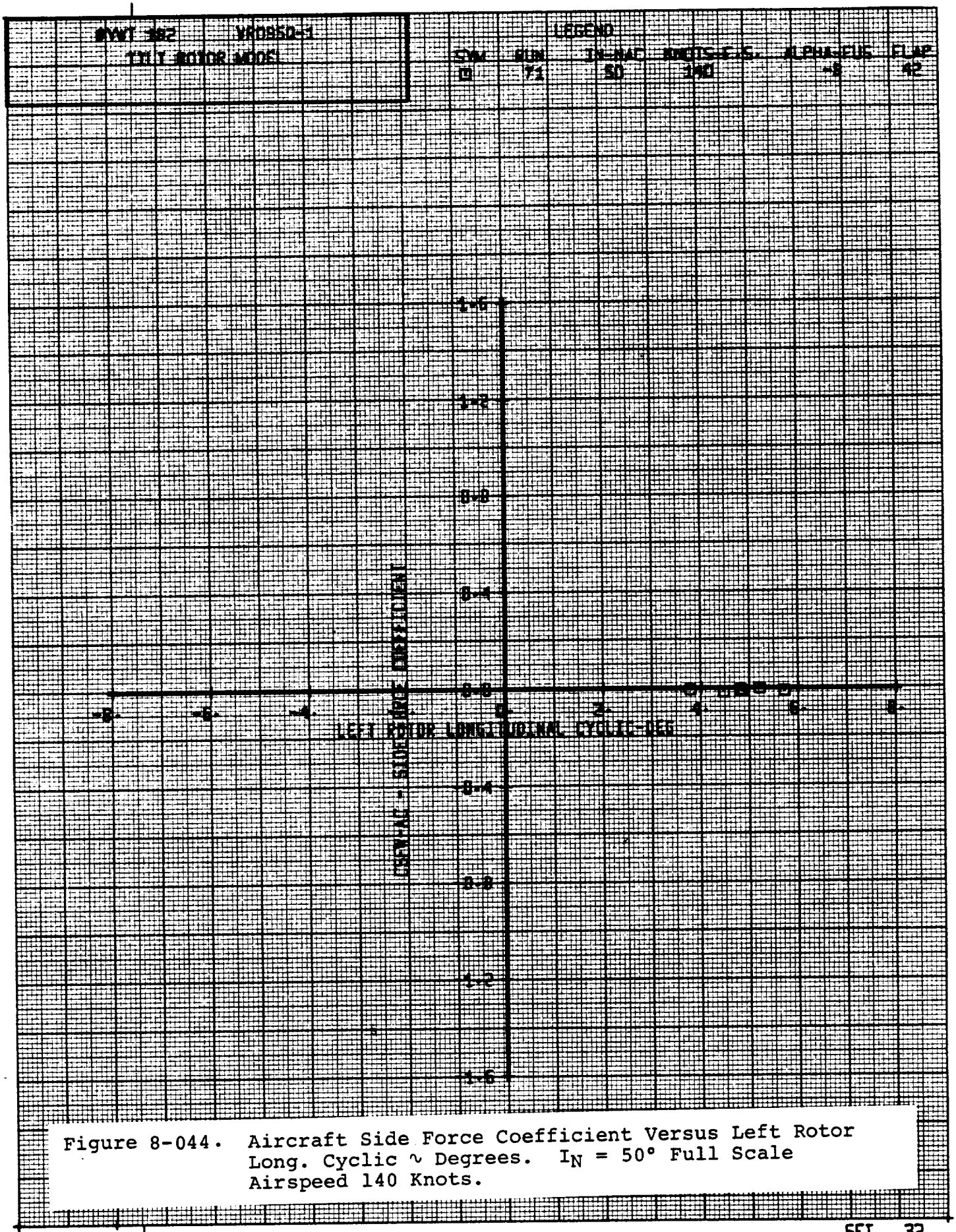


Figure 8-044. Aircraft Side Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

32
182

SET 32
BVWT 182

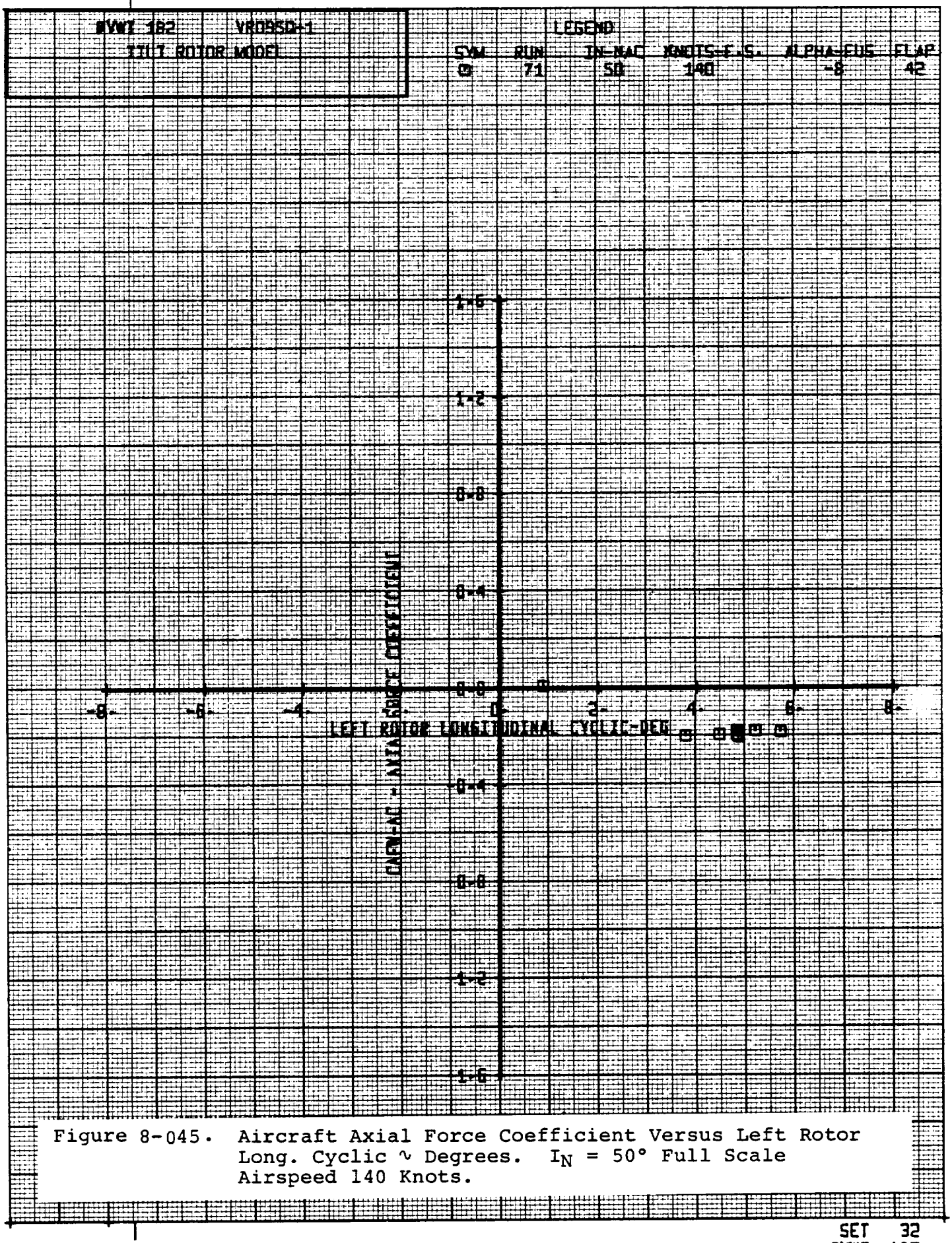


Figure 8-045. Aircraft Axial Force Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

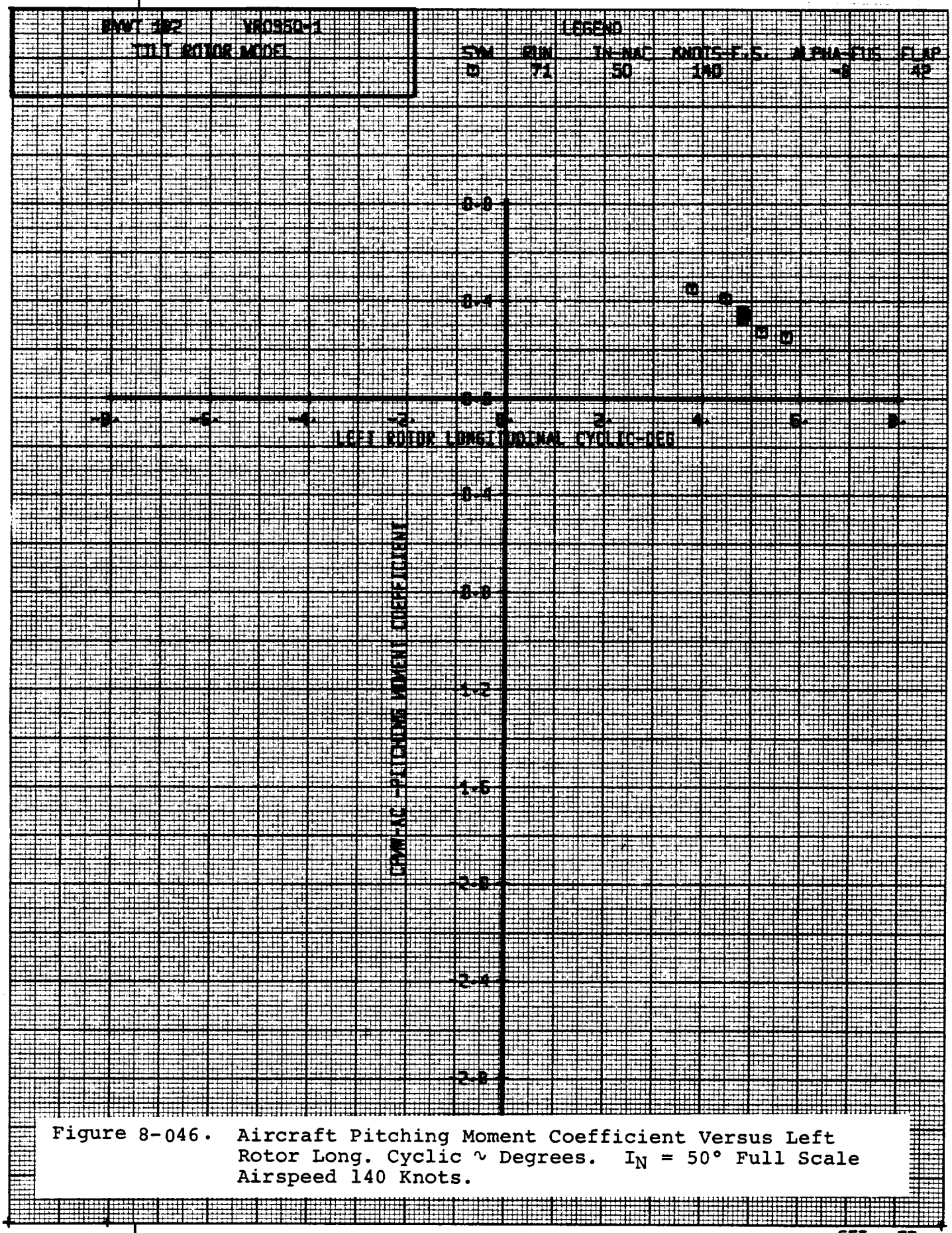


Figure 8-046. Aircraft Pitching Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

32
182

SET 32
BWT 182

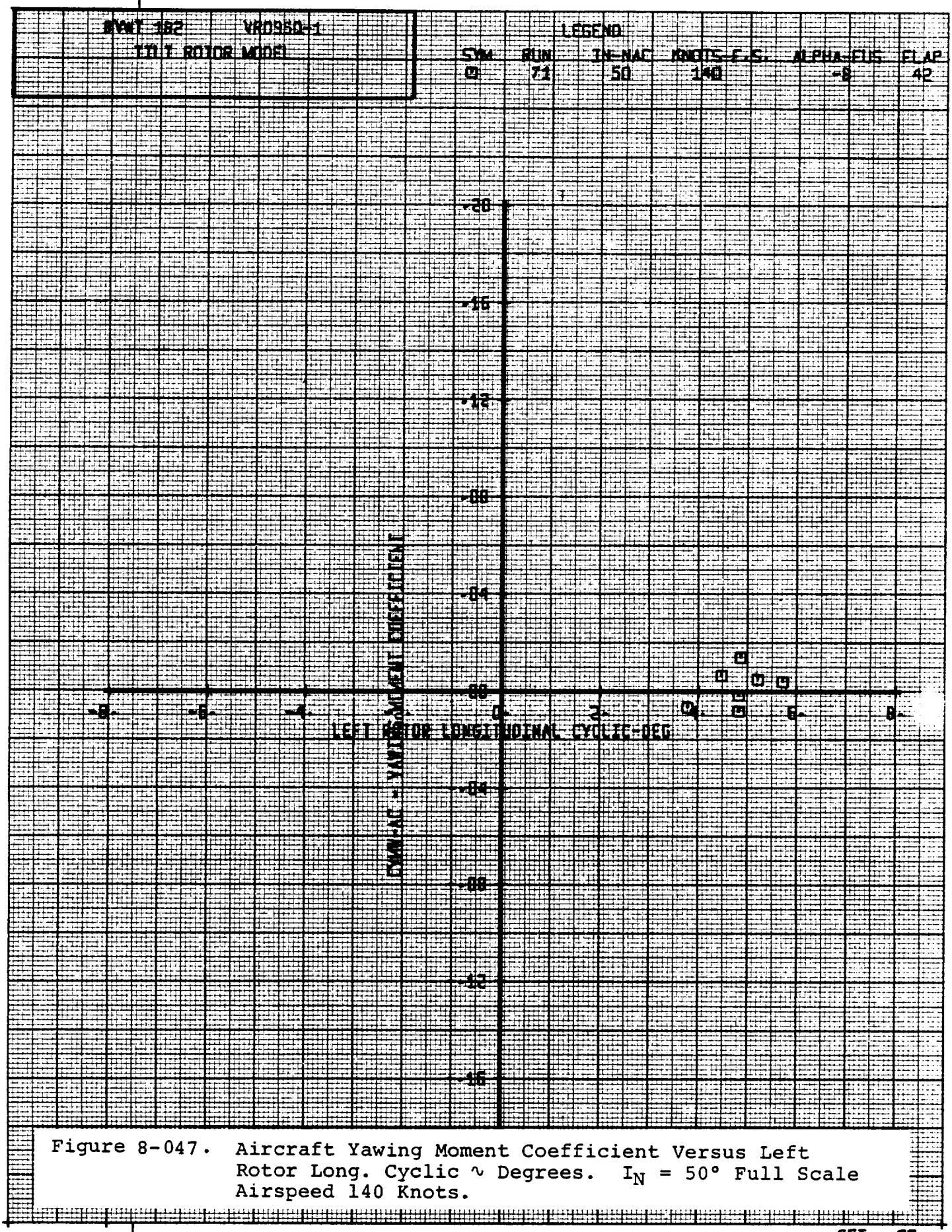


Figure 8-047. Aircraft Yawing Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

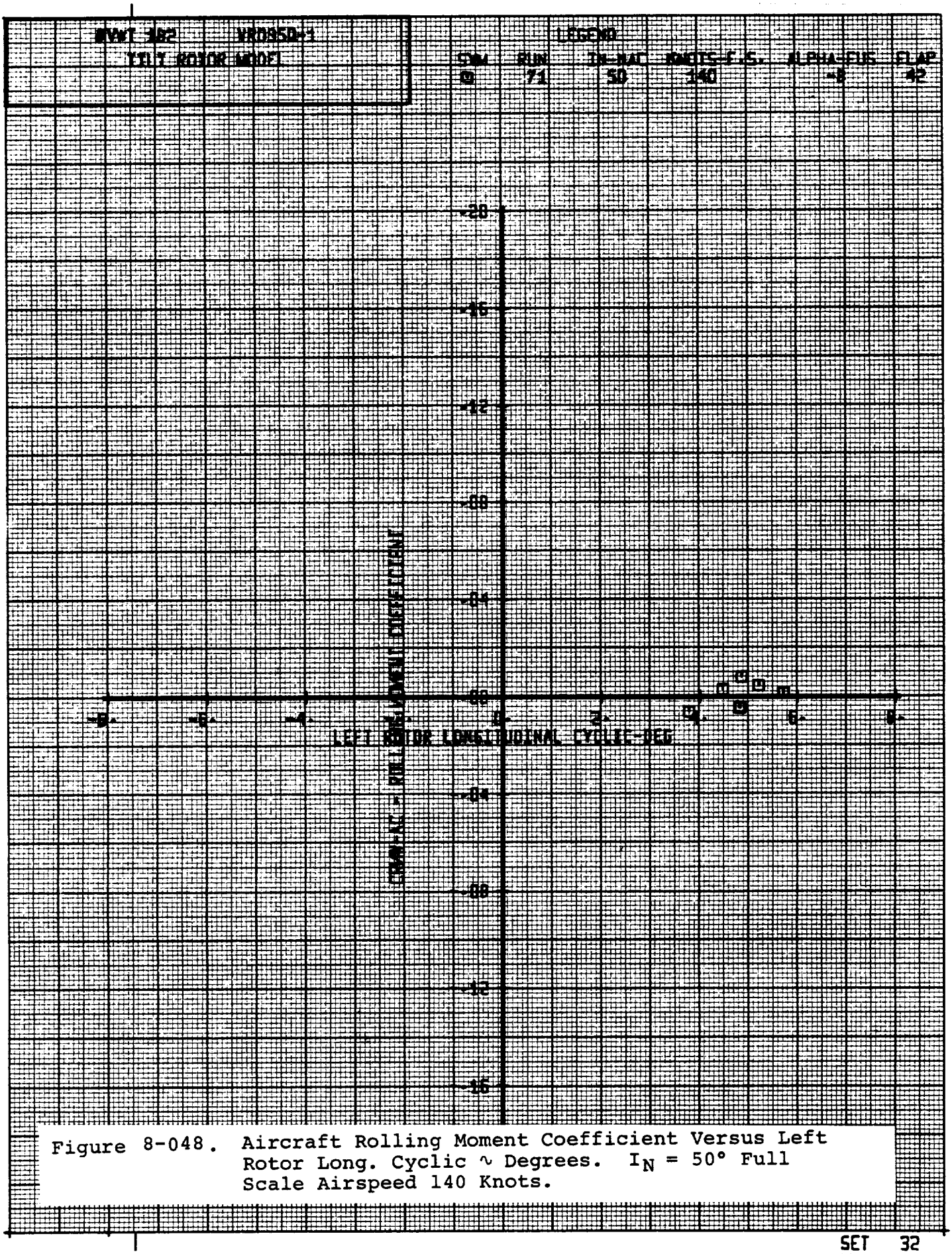


Figure 8-048. Aircraft Rolling Moment Coefficient Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

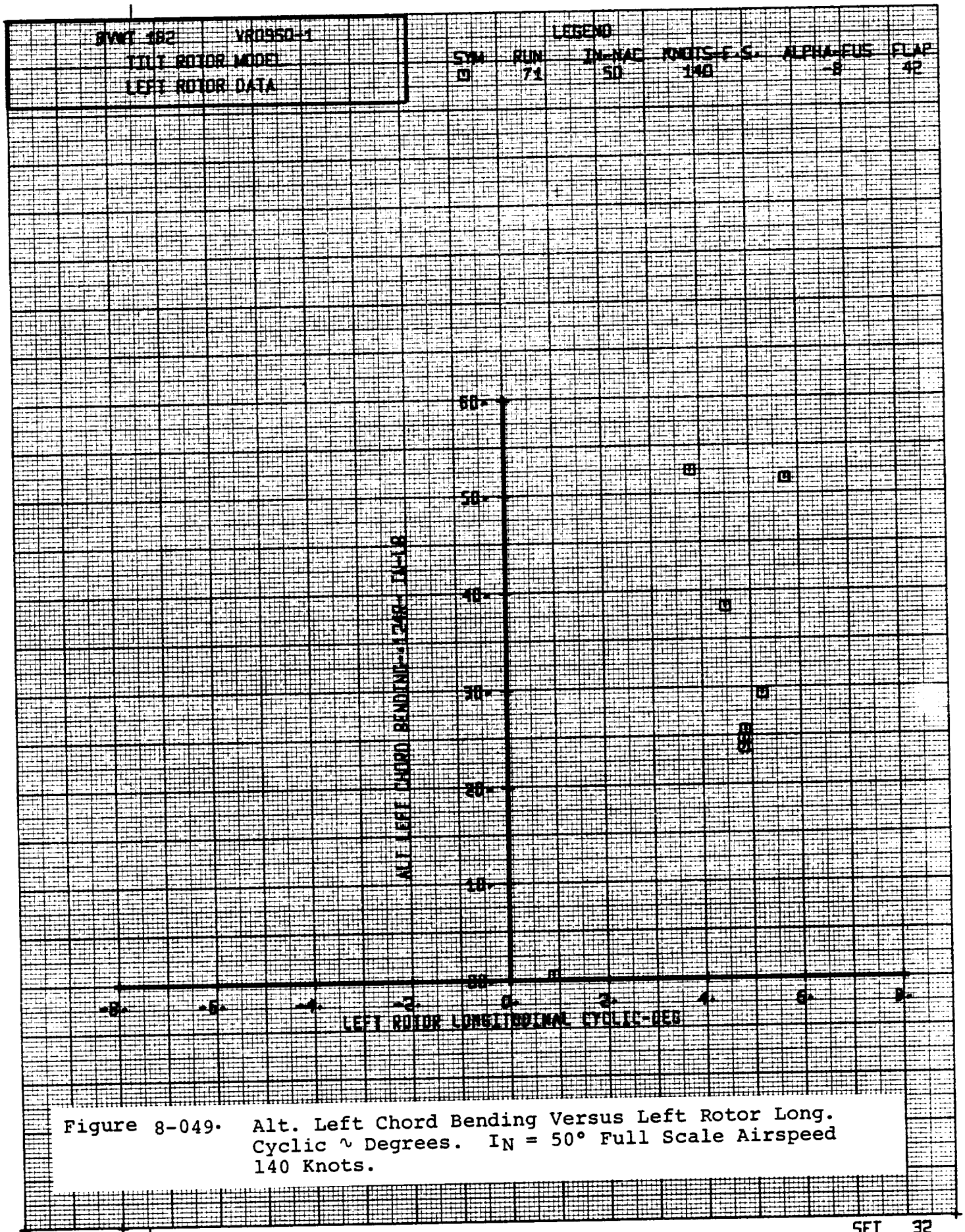


Figure 8-049. Alt. Left Chord Bending Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

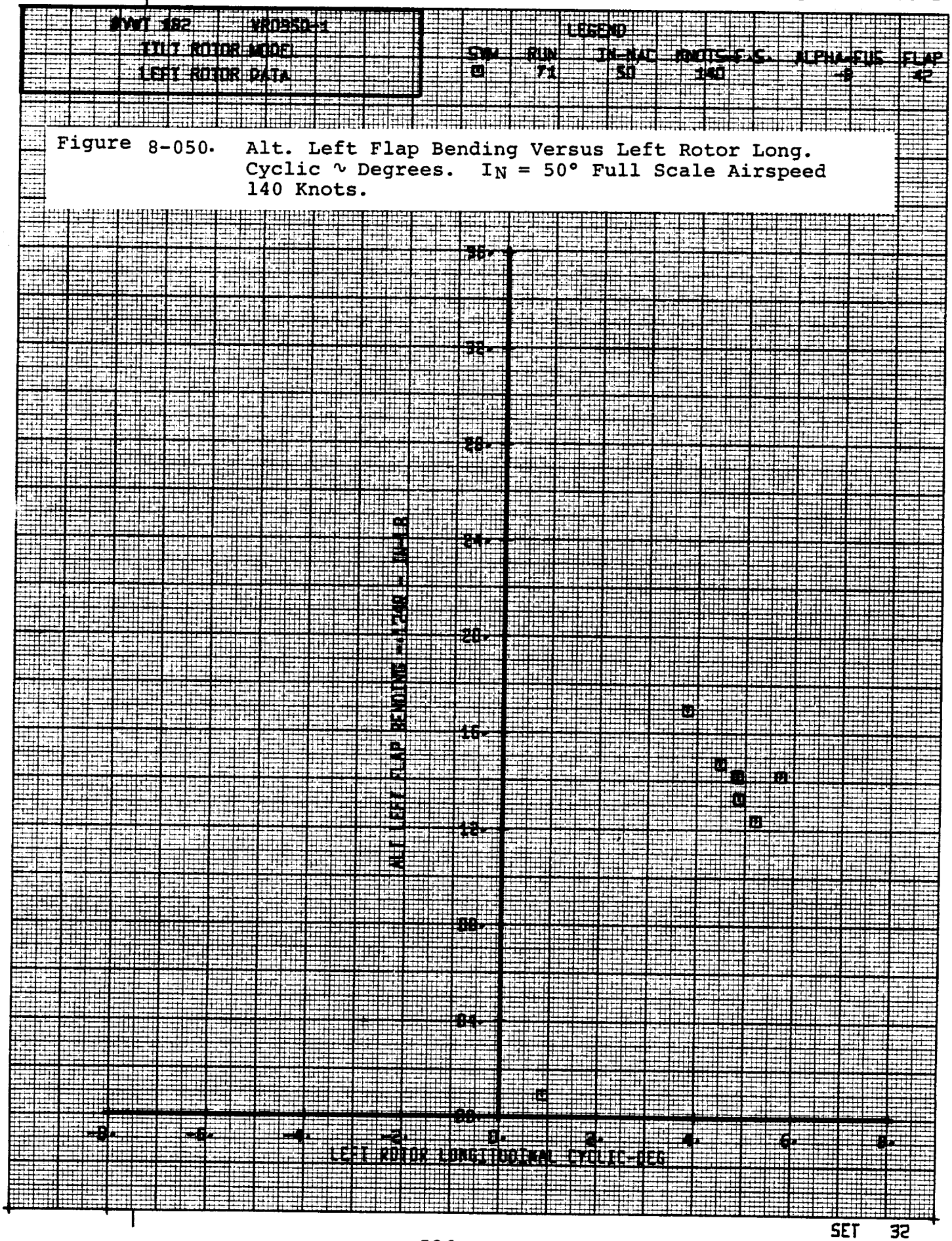


Figure 8-050. Alt. Left Flap Bending Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

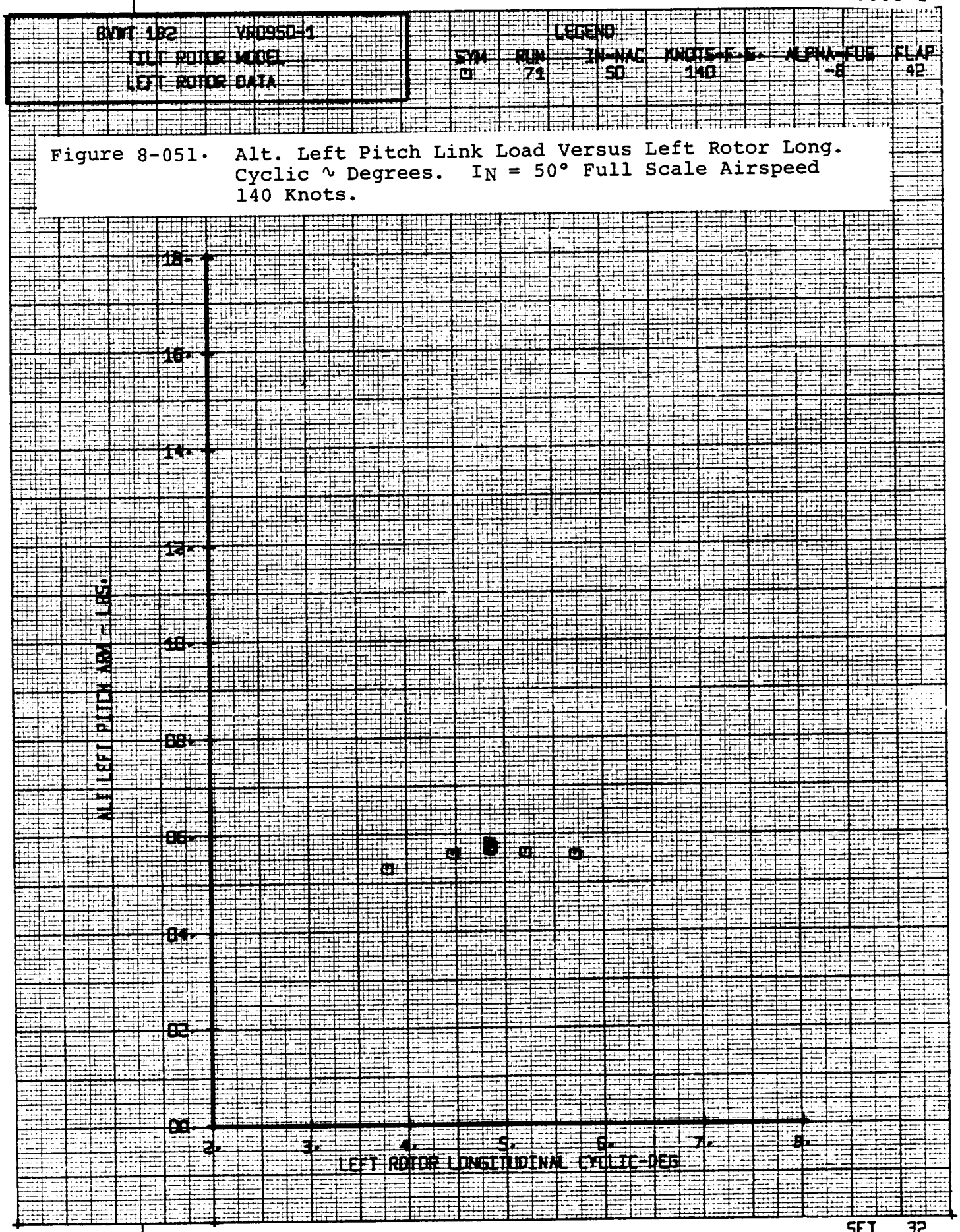


Figure 8-051. Alt. Left Pitch Link Load Versus Left Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

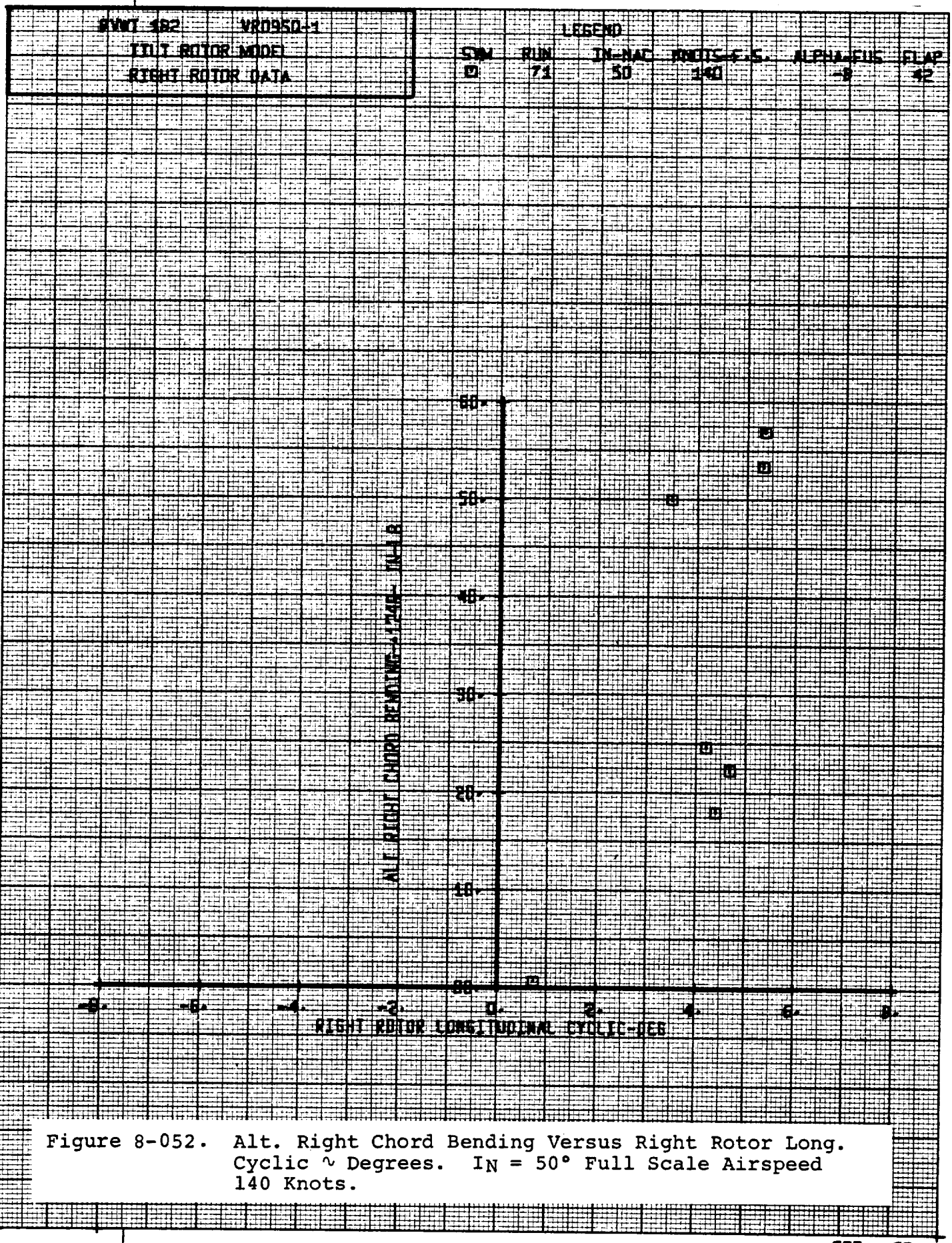


Figure 8-052. Alt. Right Chord Bending Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

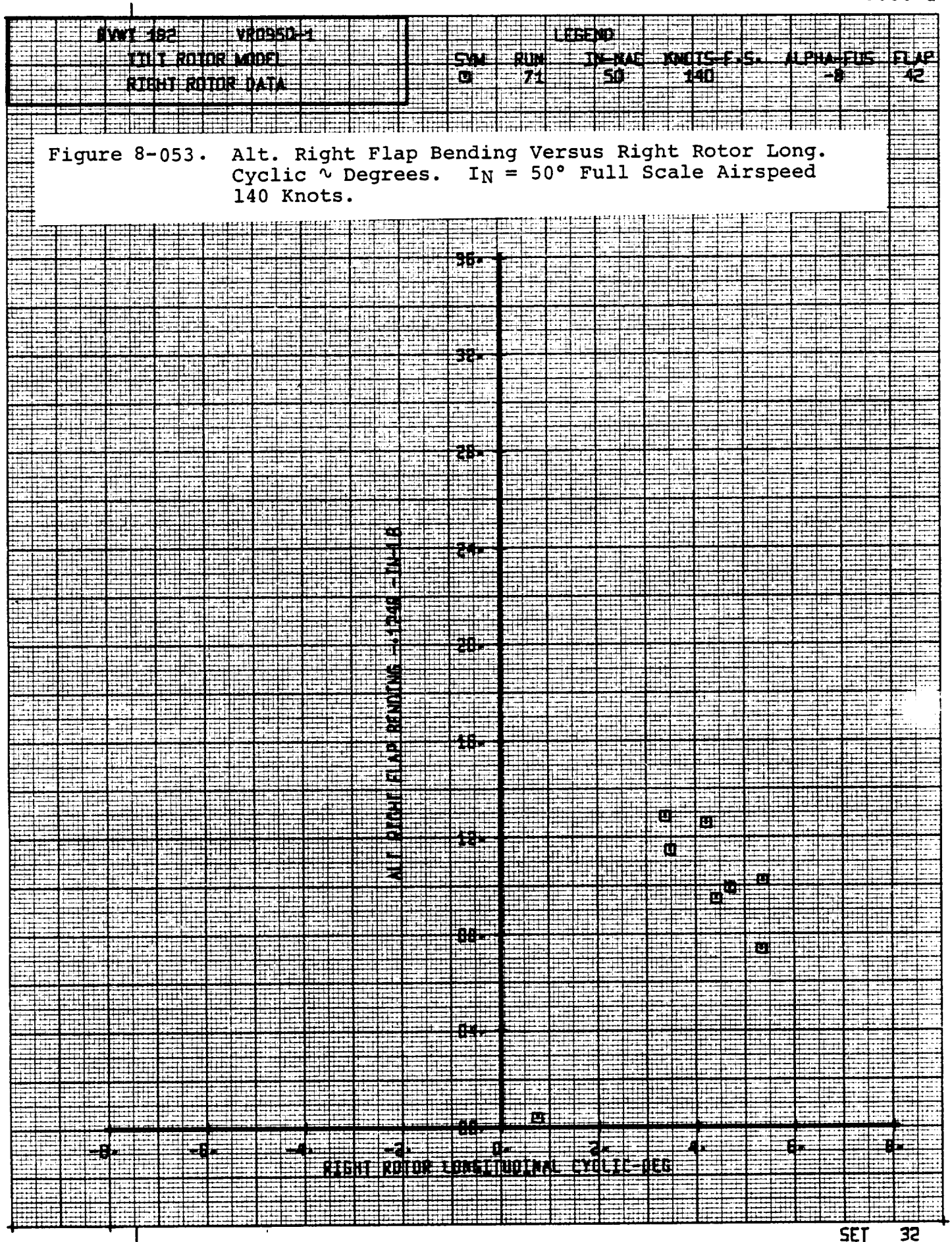


Figure 8-053. Alt. Right Flap Bending Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

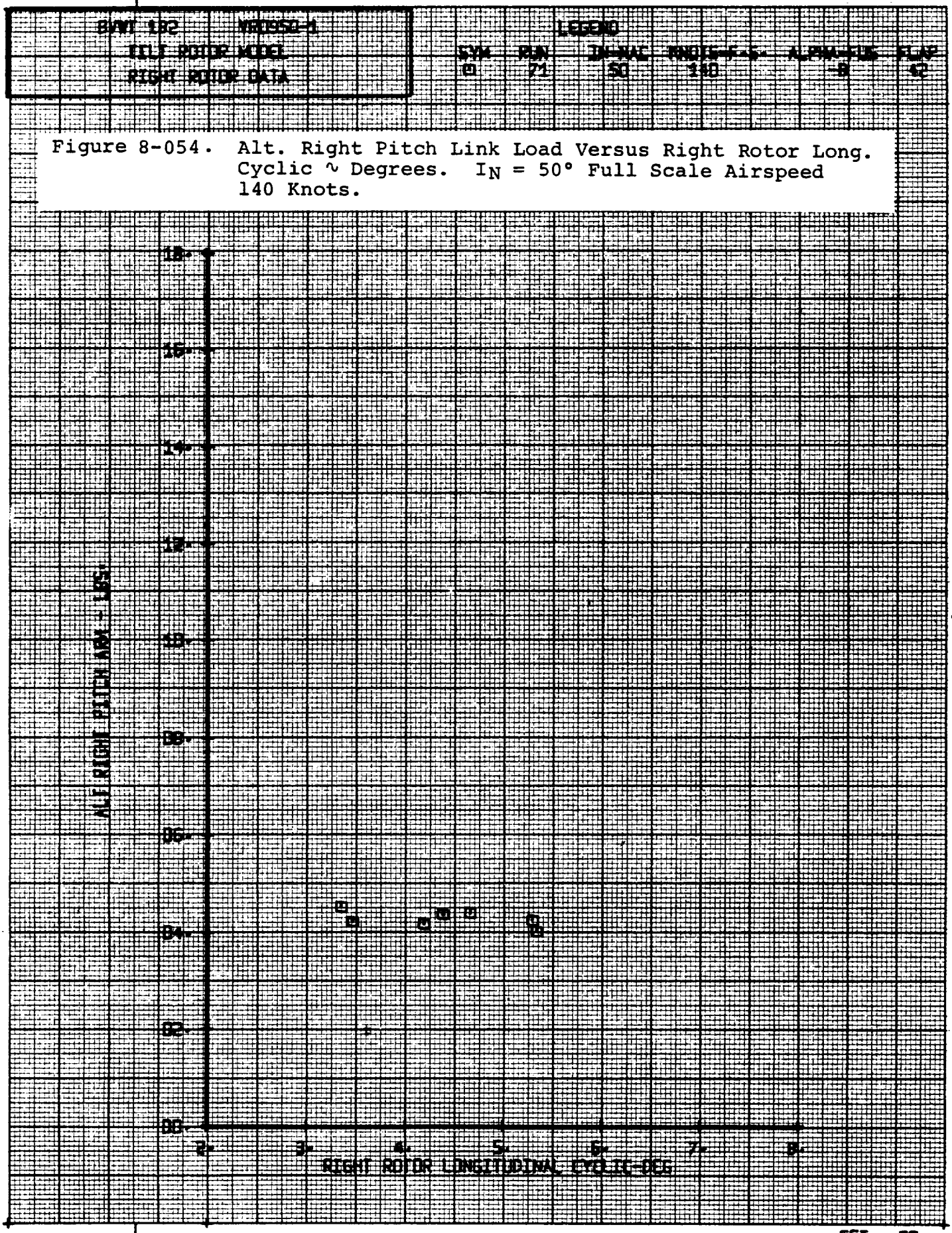


Figure 8-054. Alt. Right Pitch Link Load Versus Right Rotor Long. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

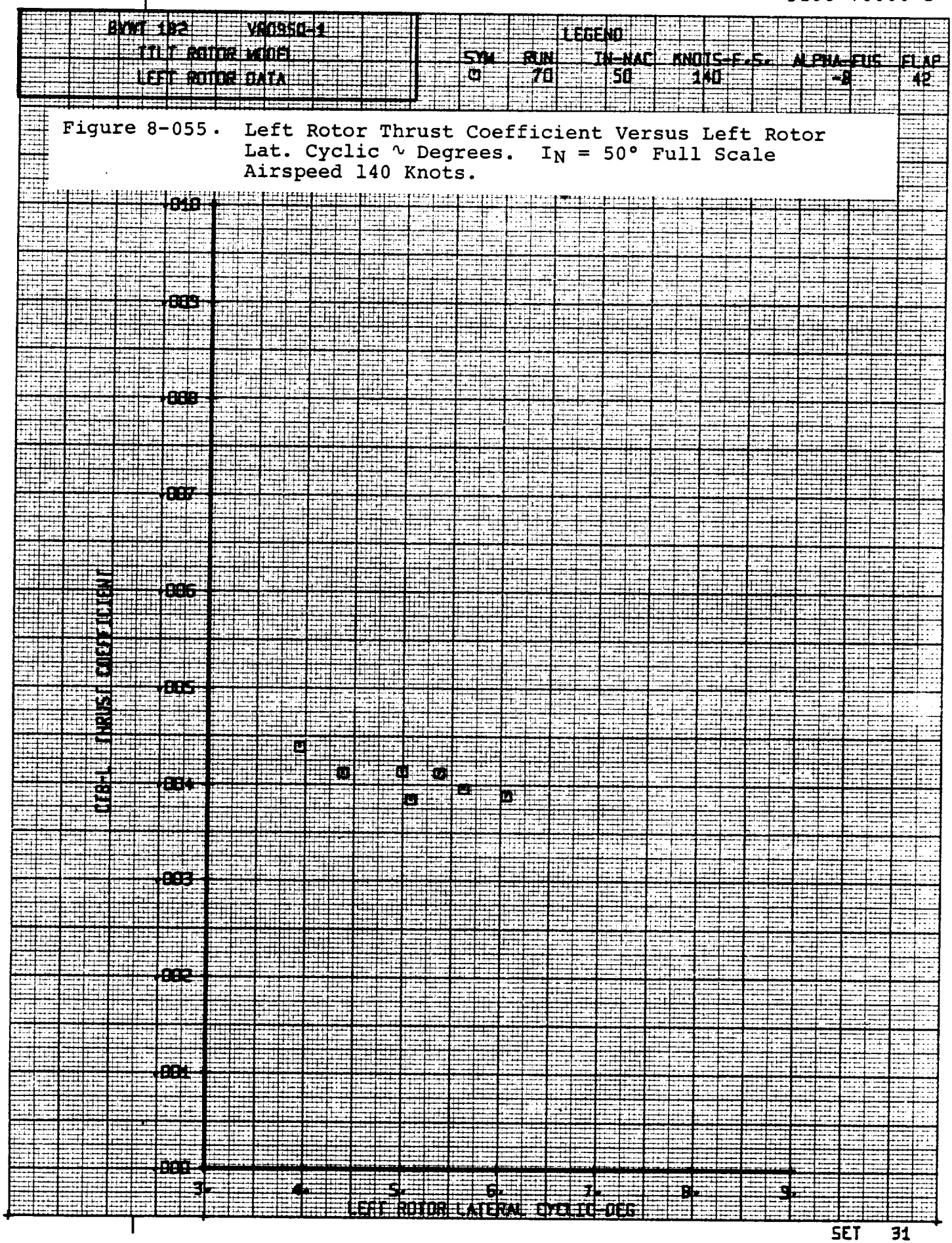


Figure 8-055. Left Rotor Thrust Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

SET 31
BVWT 182

SET 31
BVWT 182

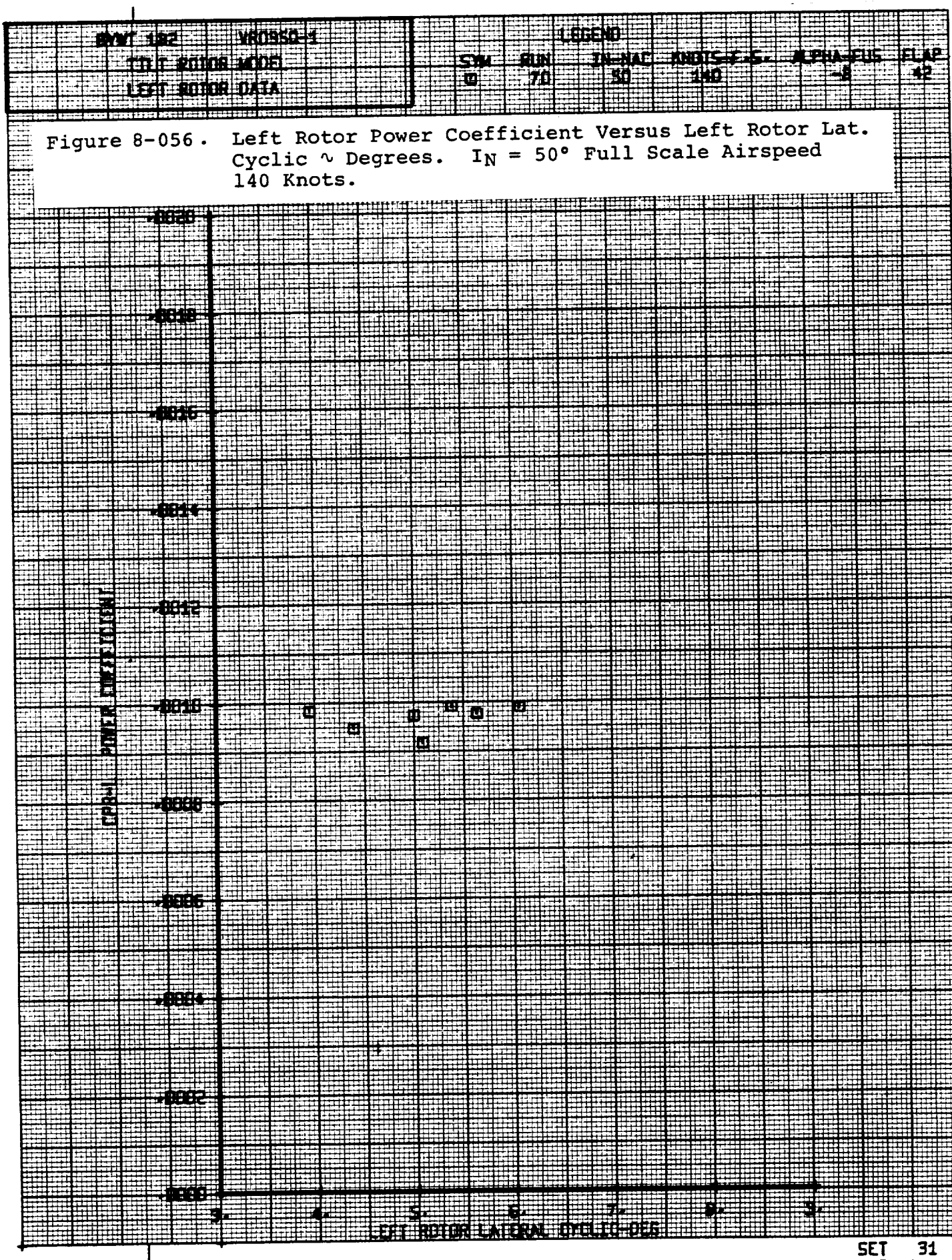


Figure 8-056. Left Rotor Power Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

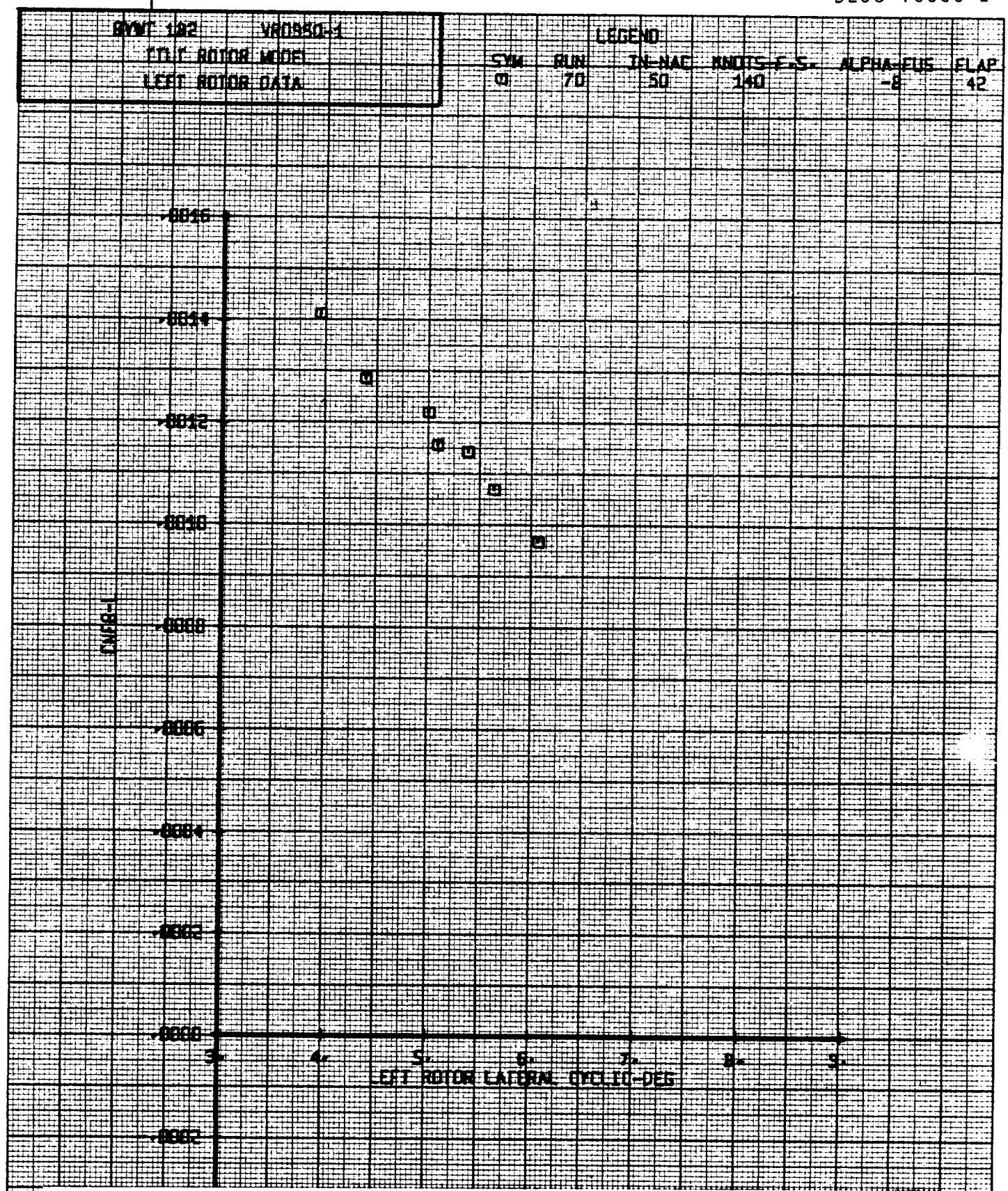


Figure 8-057. Left Rotor Normal Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

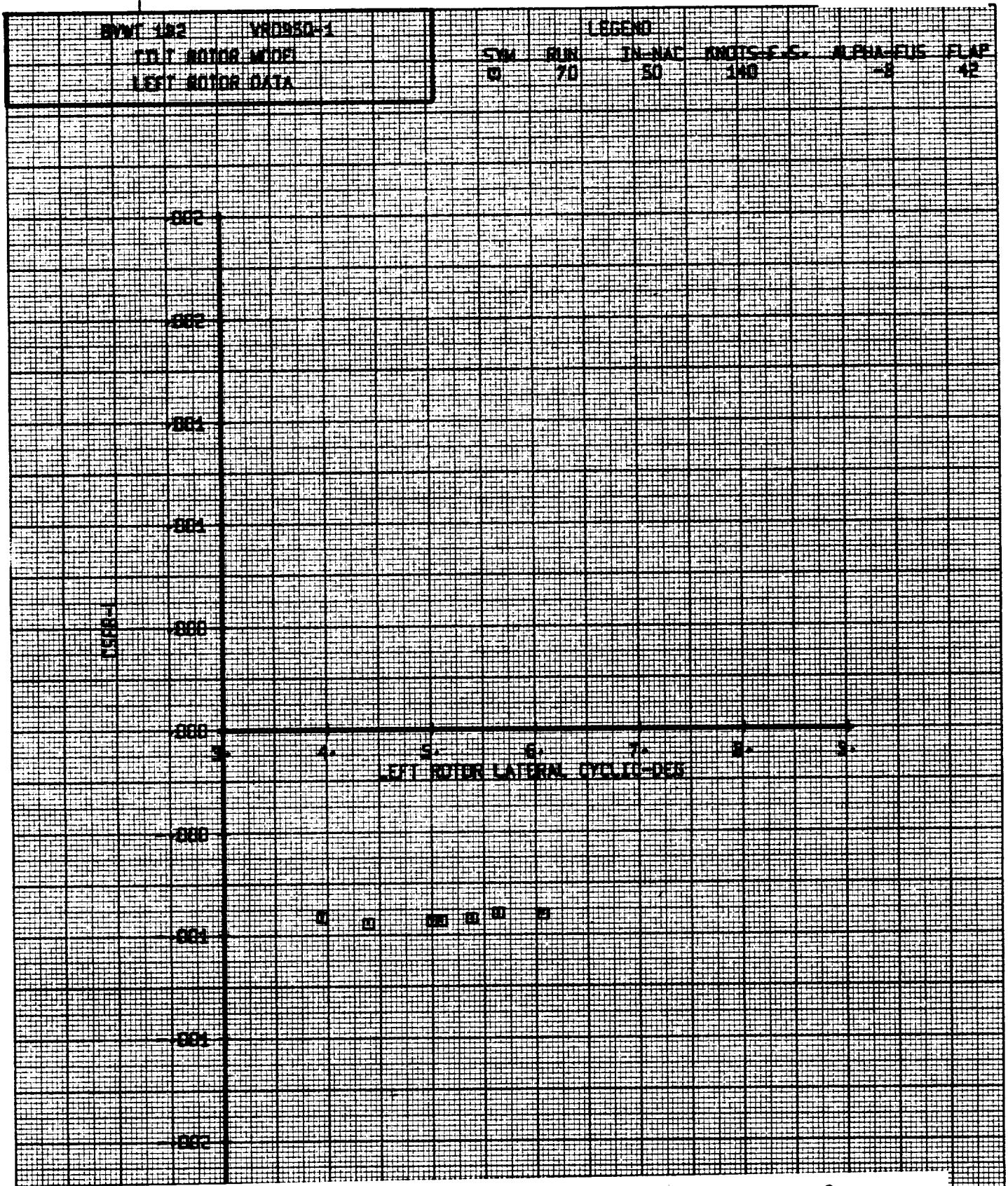


Figure 8-058. Left Rotor Side Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

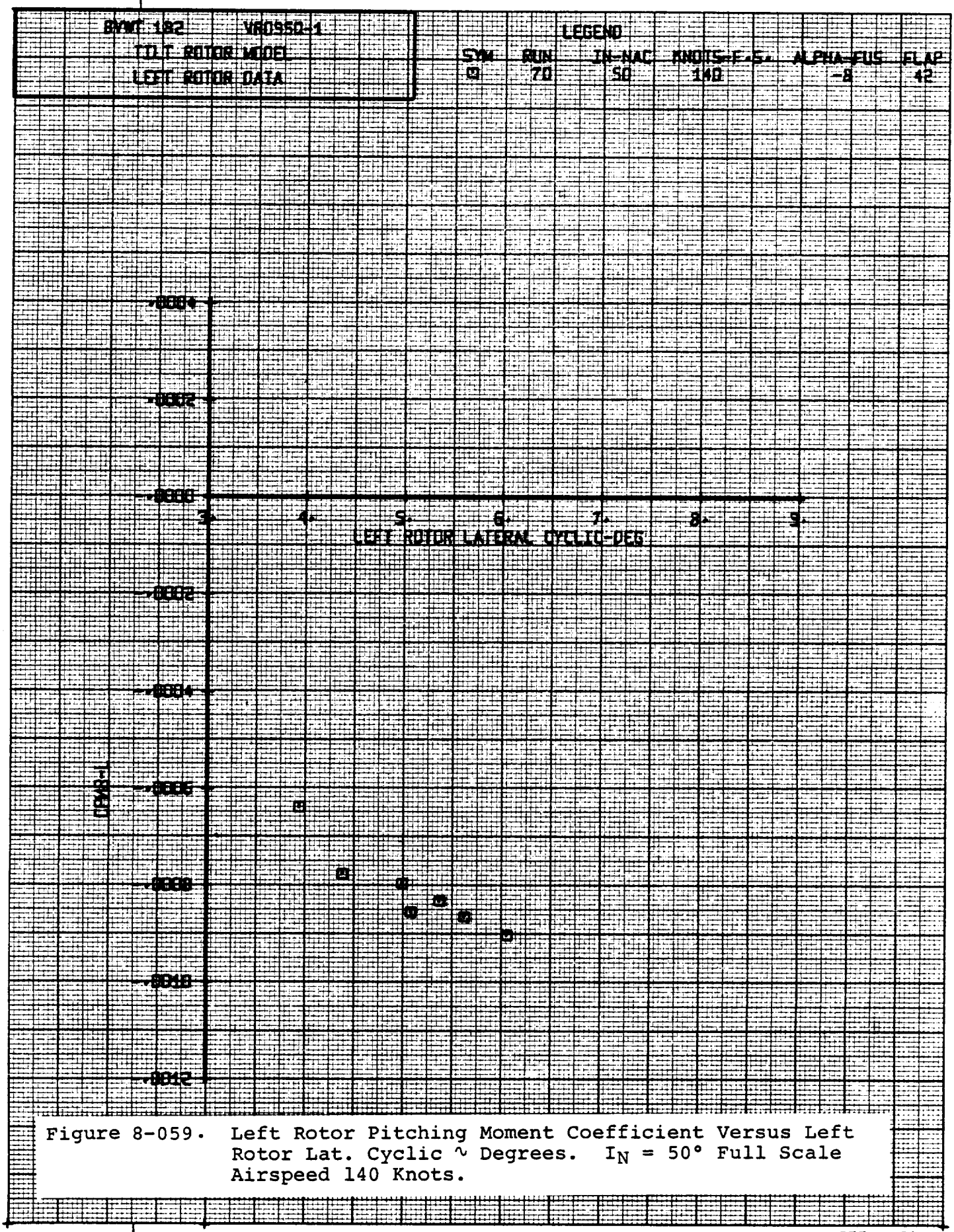


Figure 8-059. Left Rotor Pitching Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

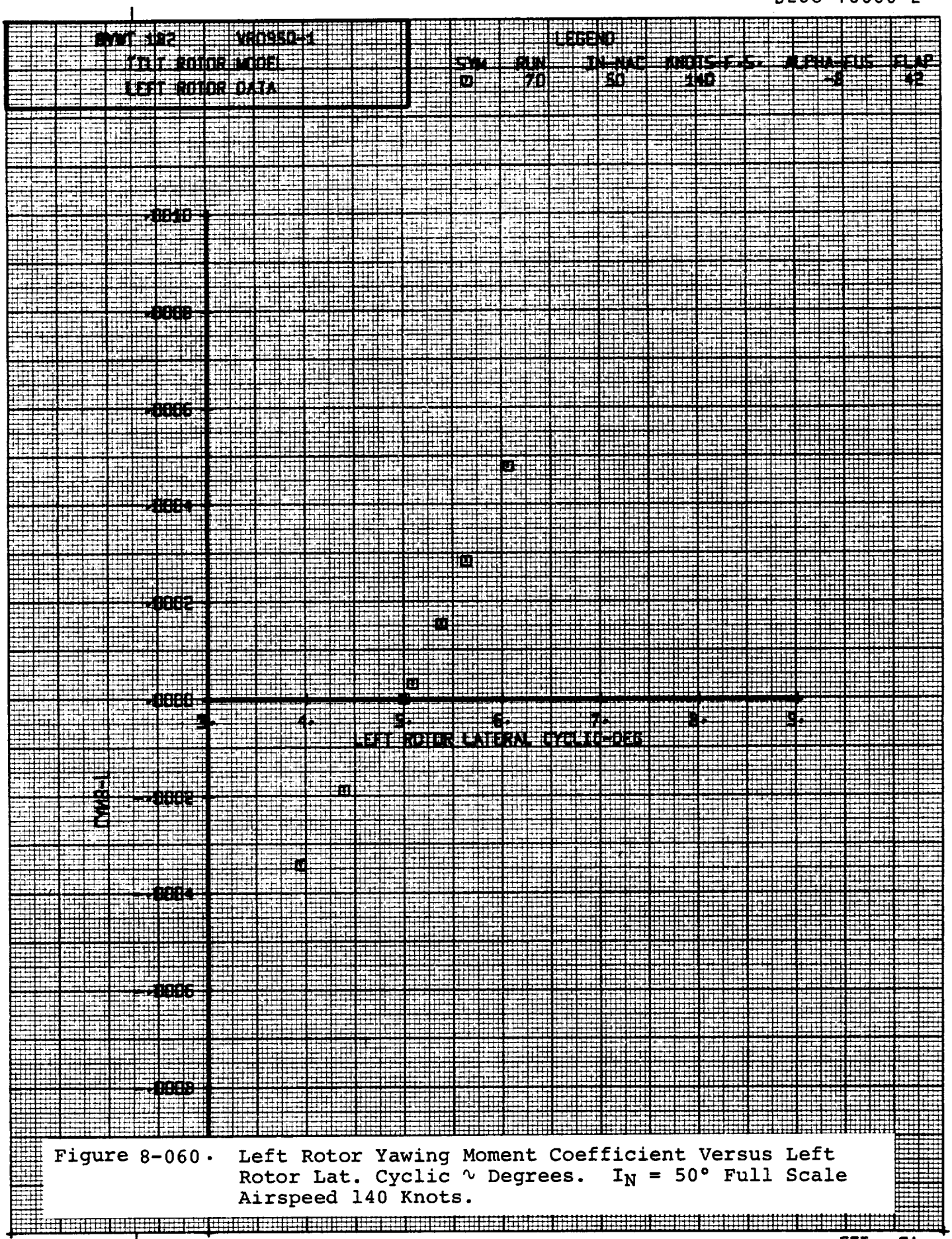


Figure 8-060. Left Rotor Yawing Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

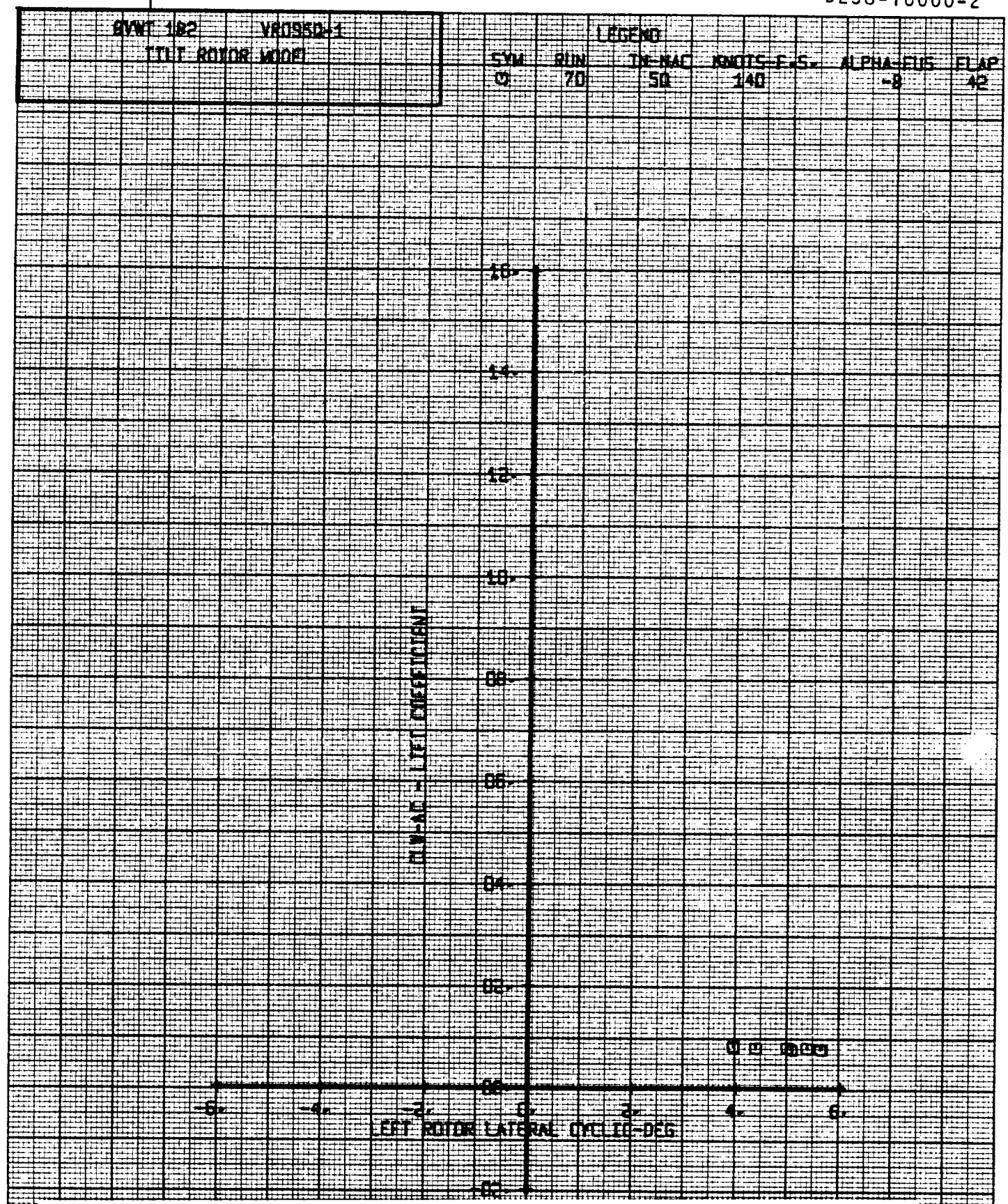


Figure 8-061. Aircraft Lift Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

ET 31
W 182

SET 31
BVWT 182

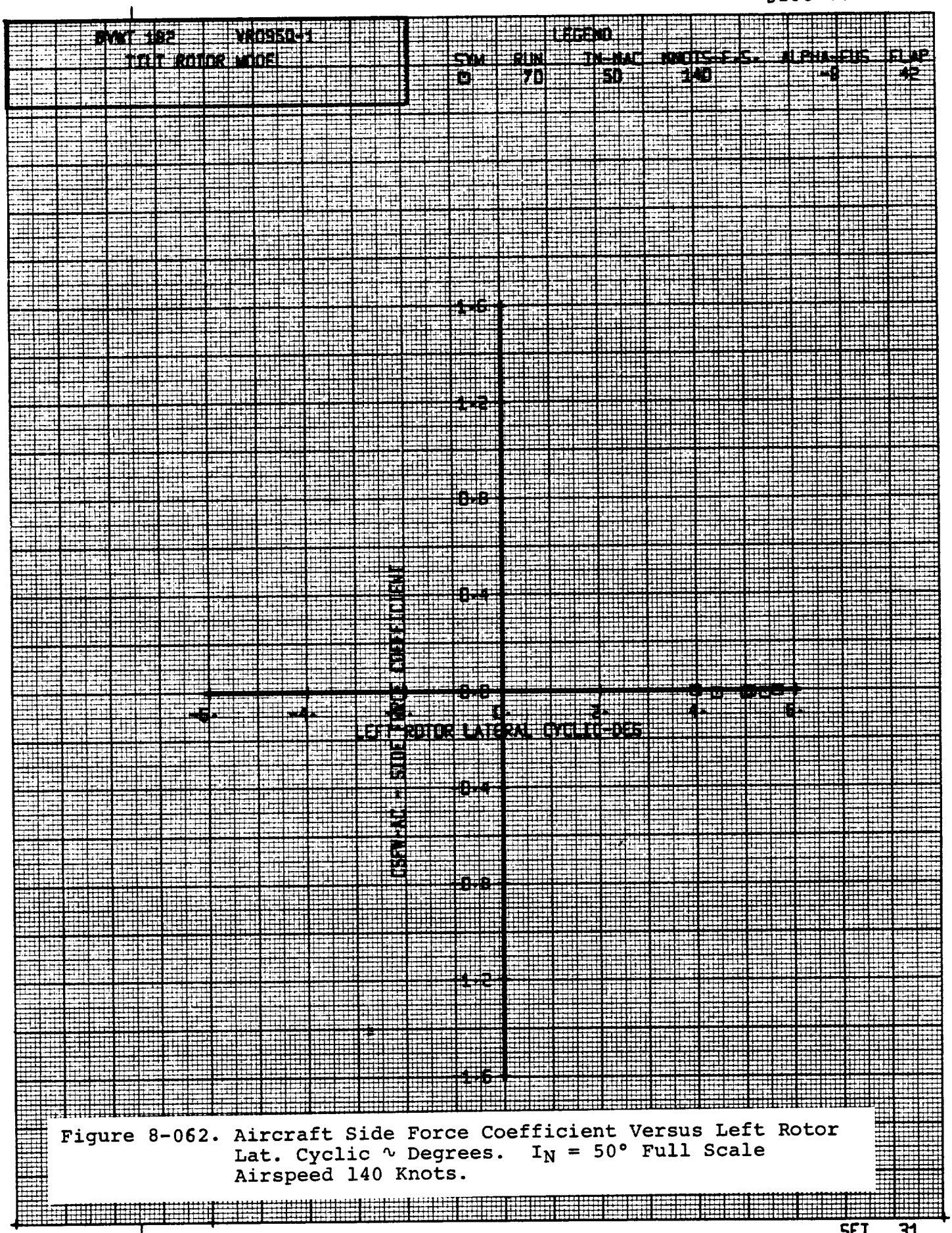


Figure 8-062. Aircraft Side Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

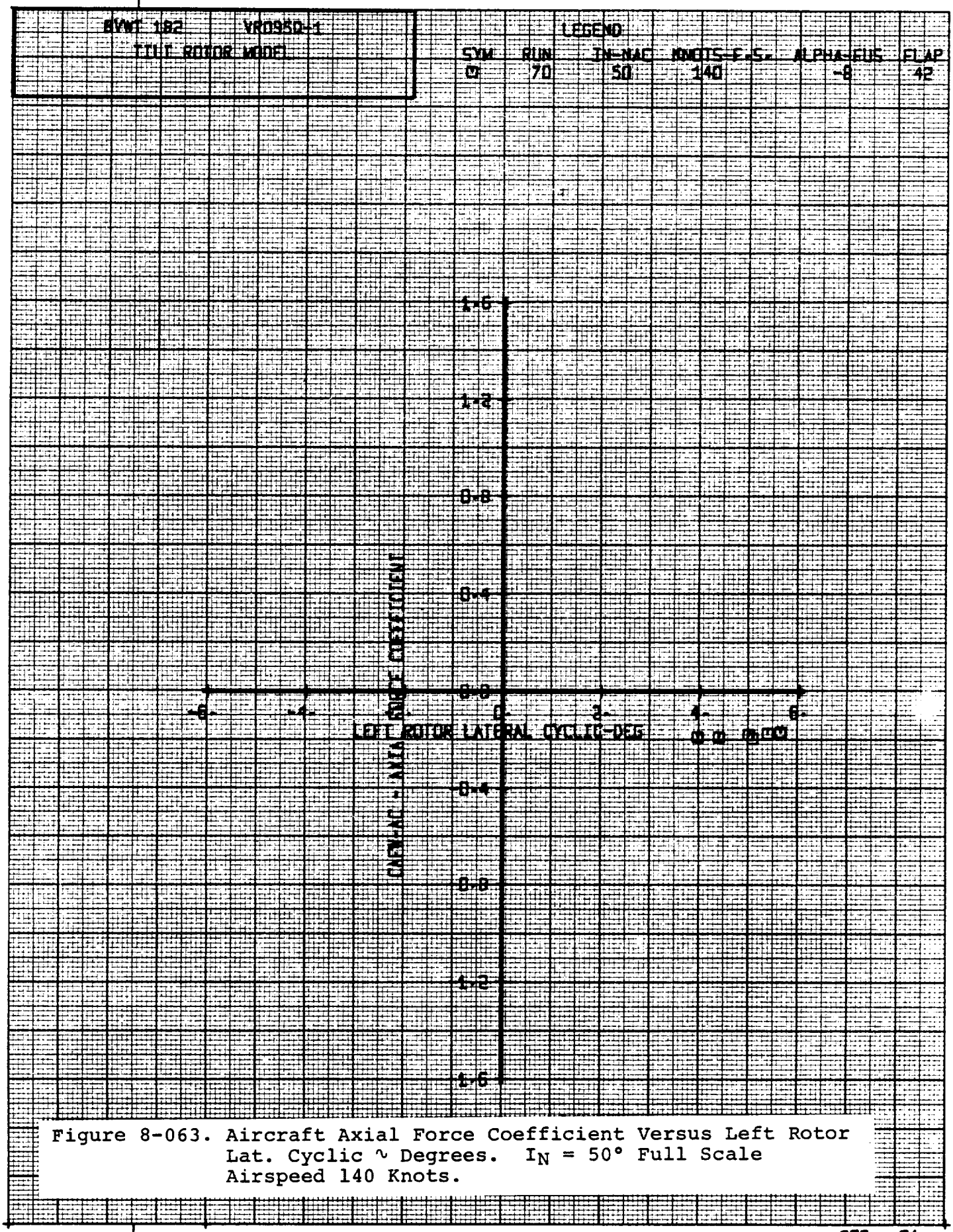


Figure 8-063. Aircraft Axial Force Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

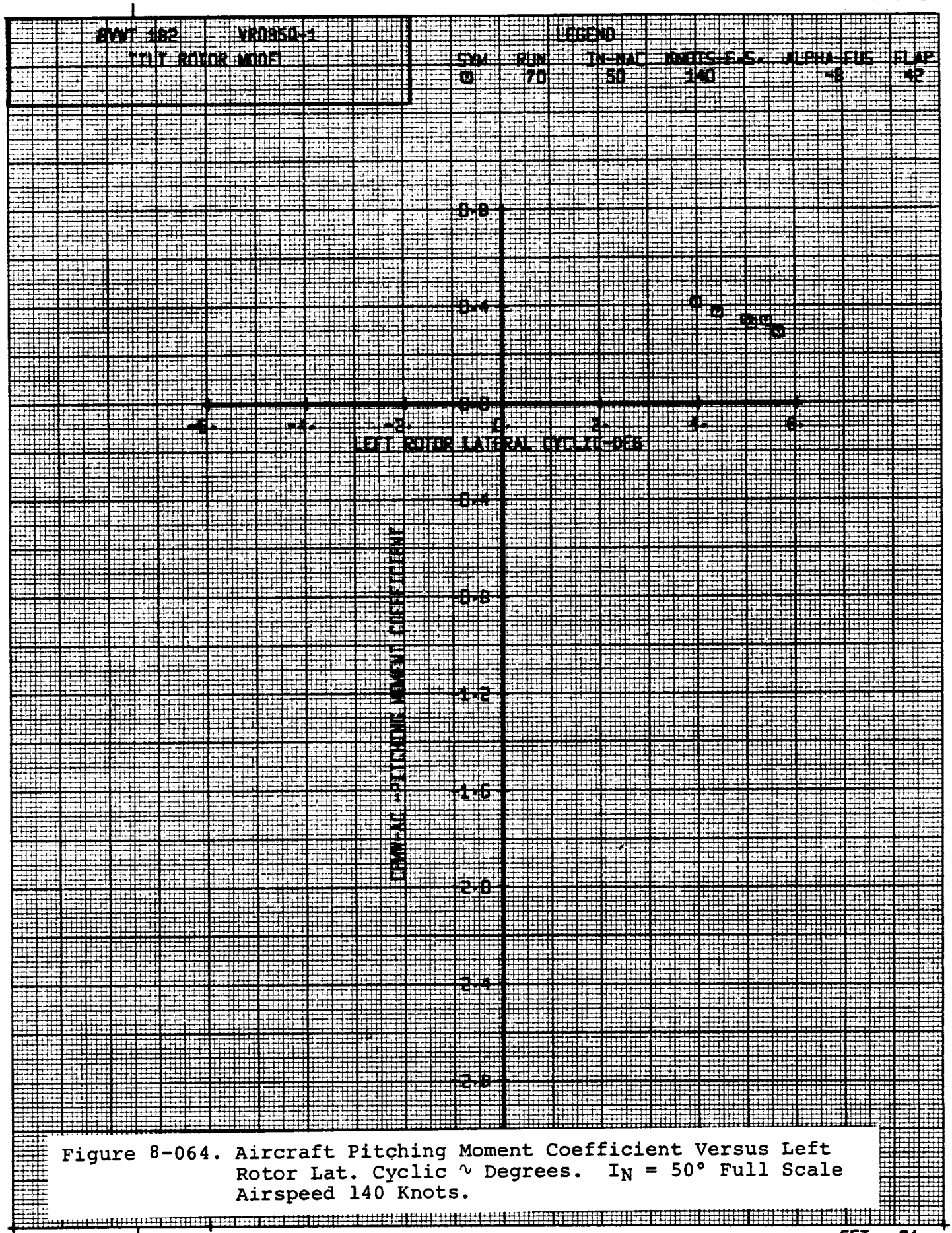


Figure 8-064. Aircraft Pitching Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

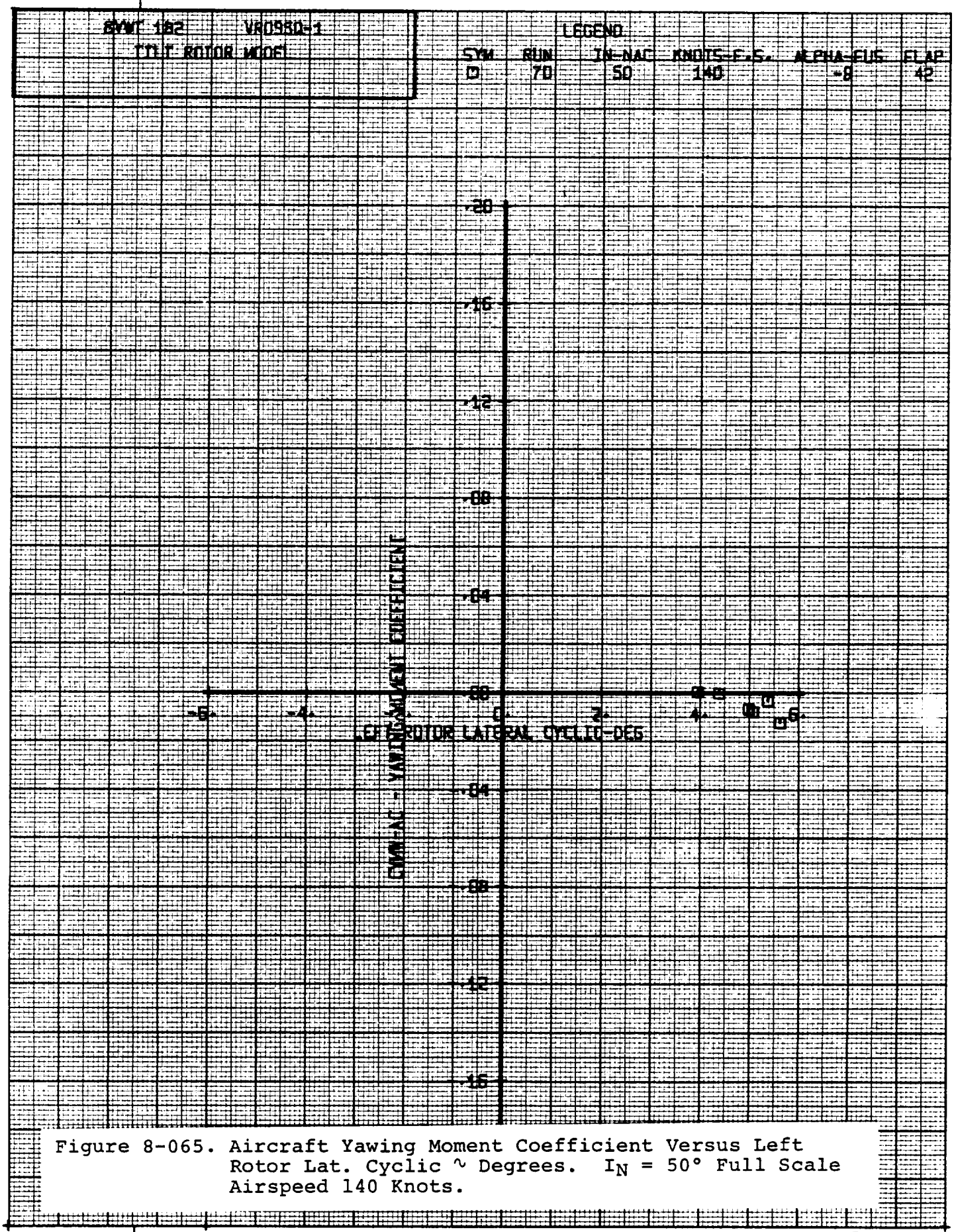


Figure 8-065. Aircraft Yawing Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

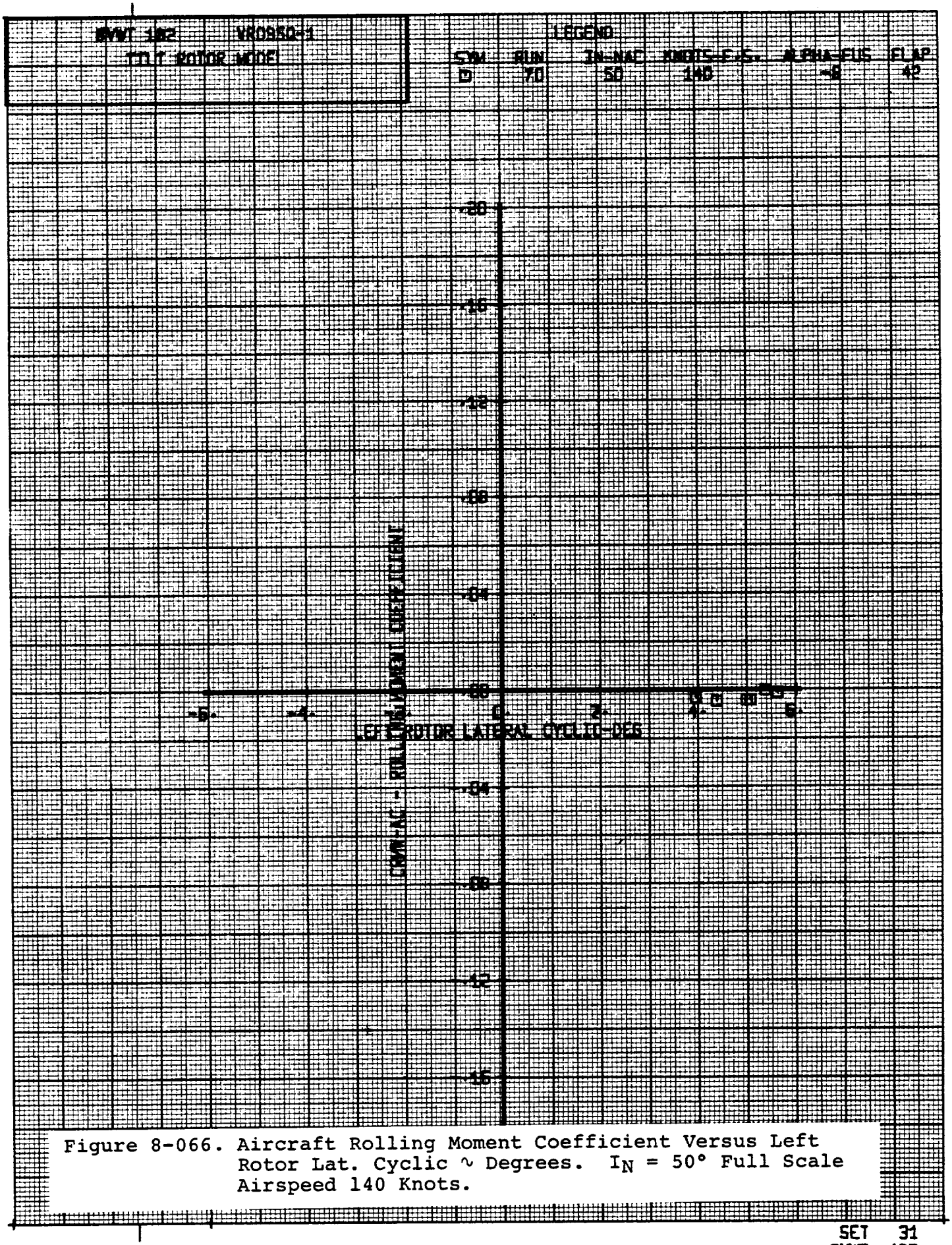


Figure 8-066. Aircraft Rolling Moment Coefficient Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

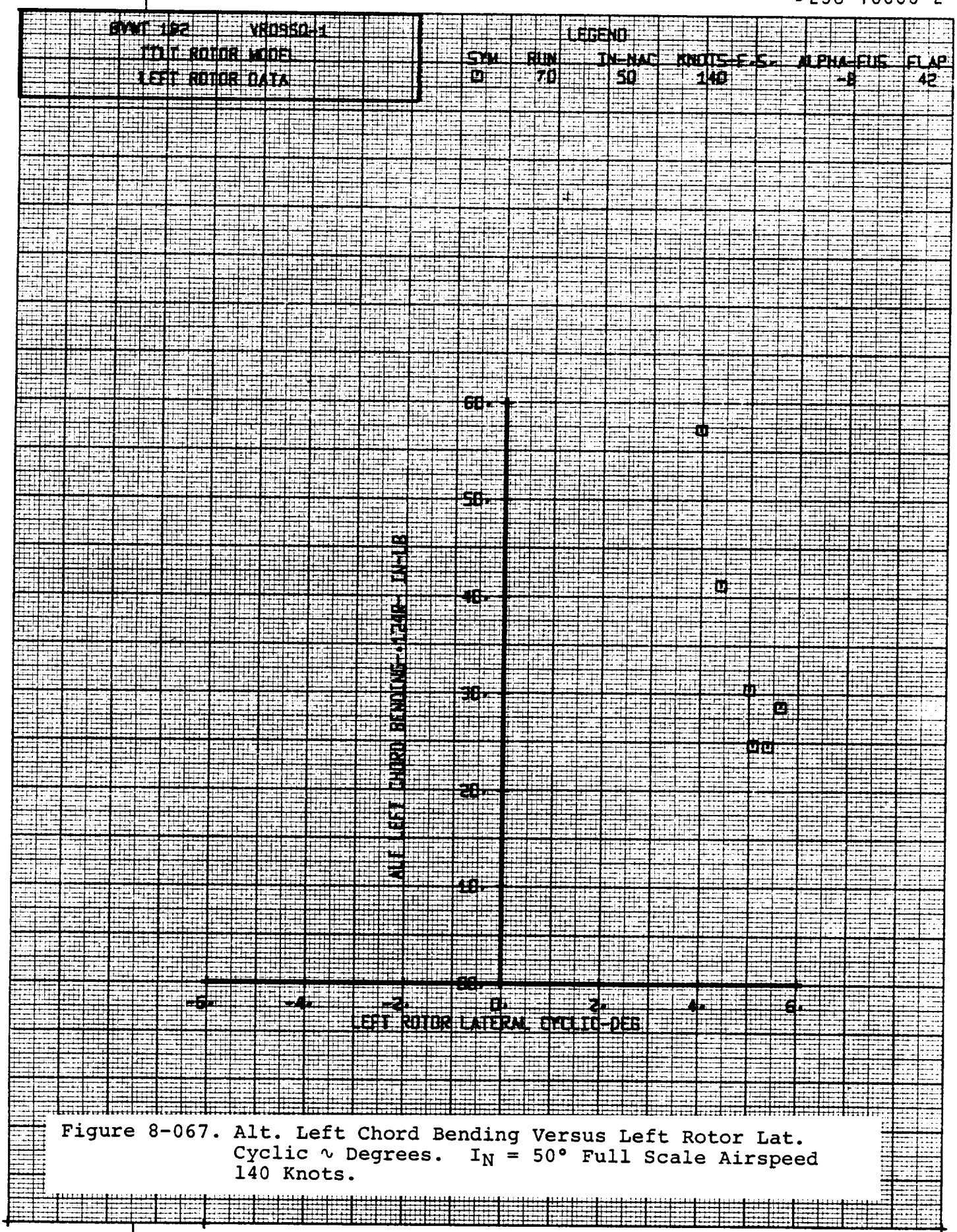


Figure 8-067. Alt. Left Chord Bending Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

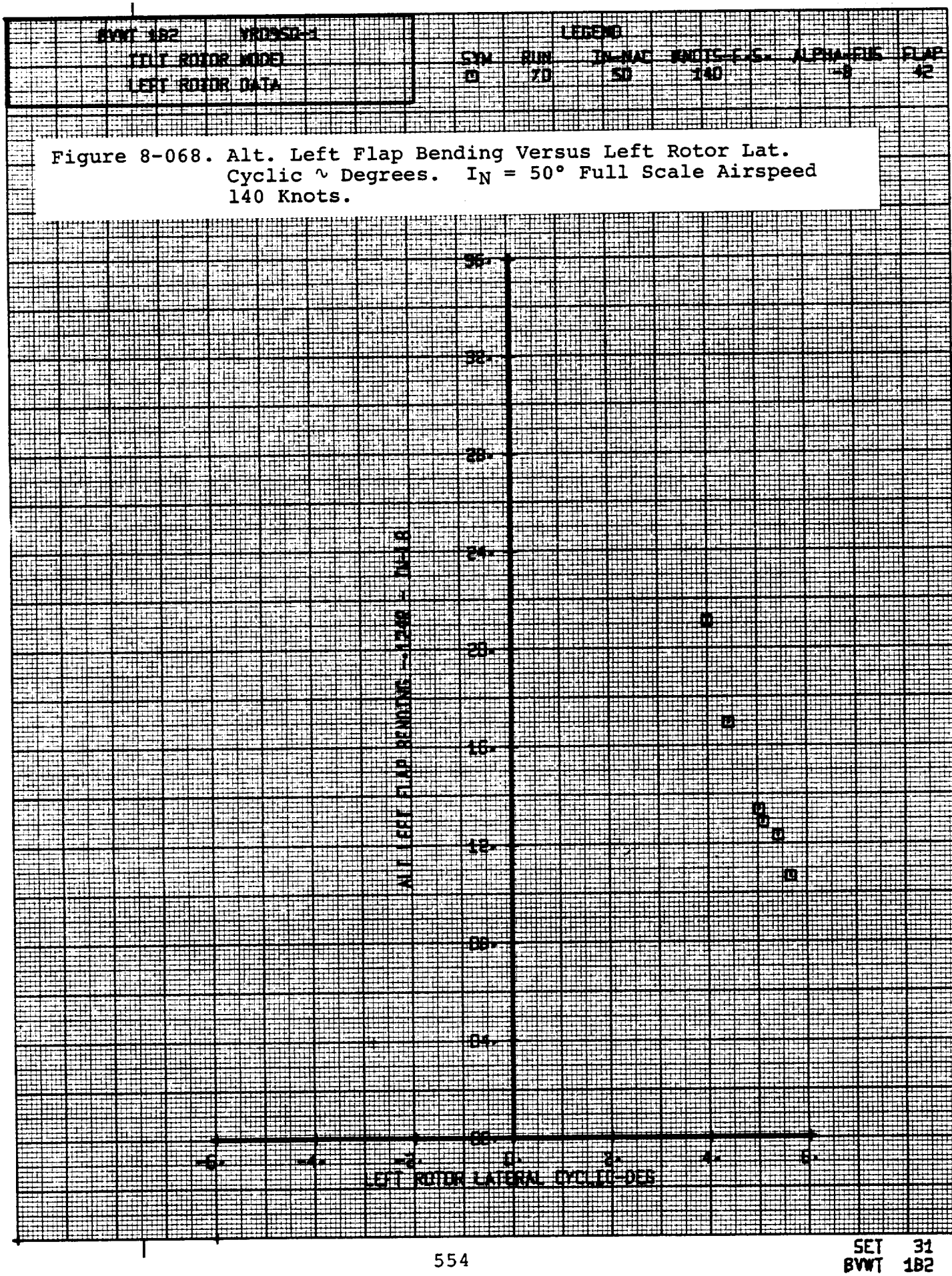


Figure 8-068. Alt. Left Flap Bending Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

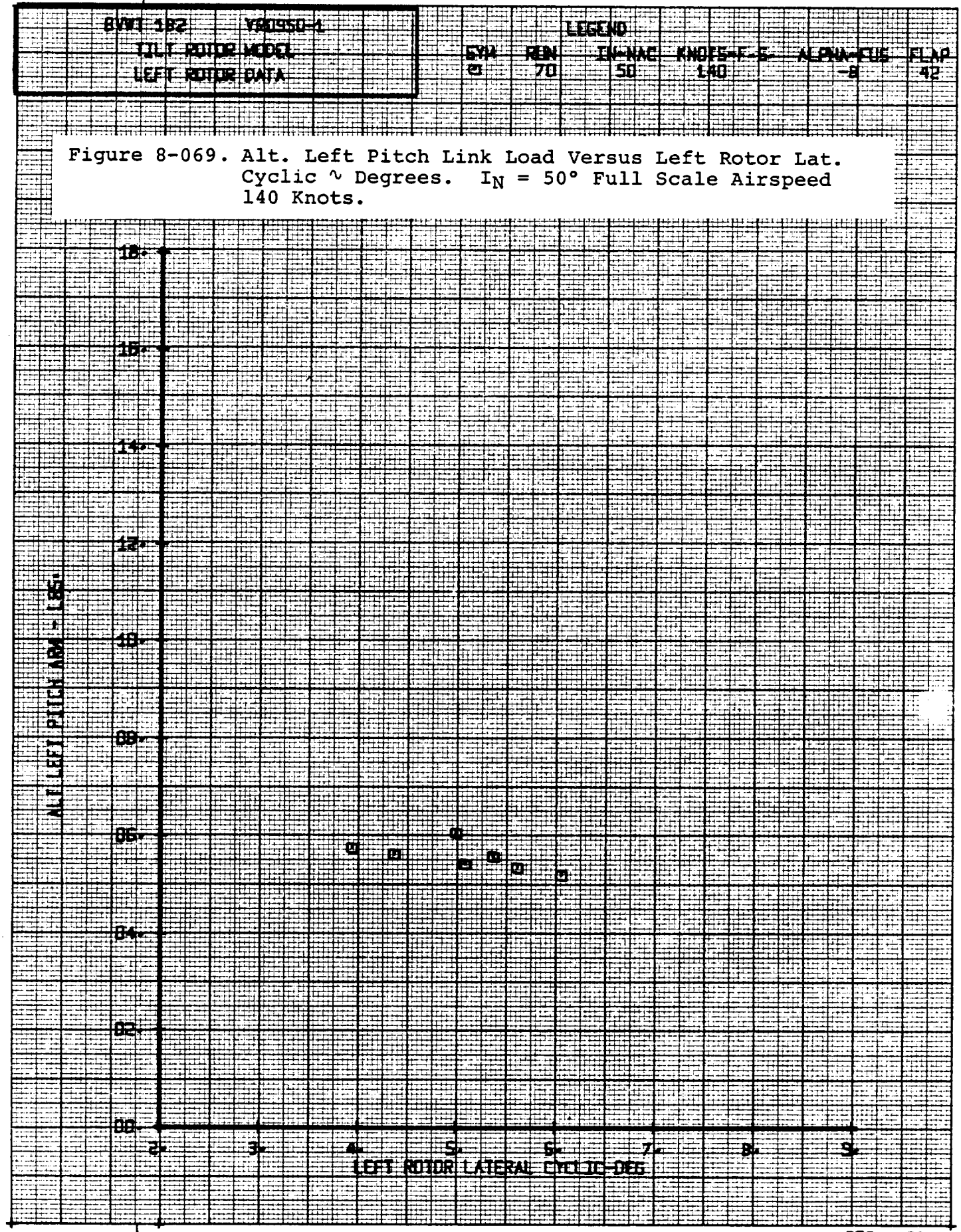


Figure 8-069. Alt. Left Pitch Link Load Versus Left Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

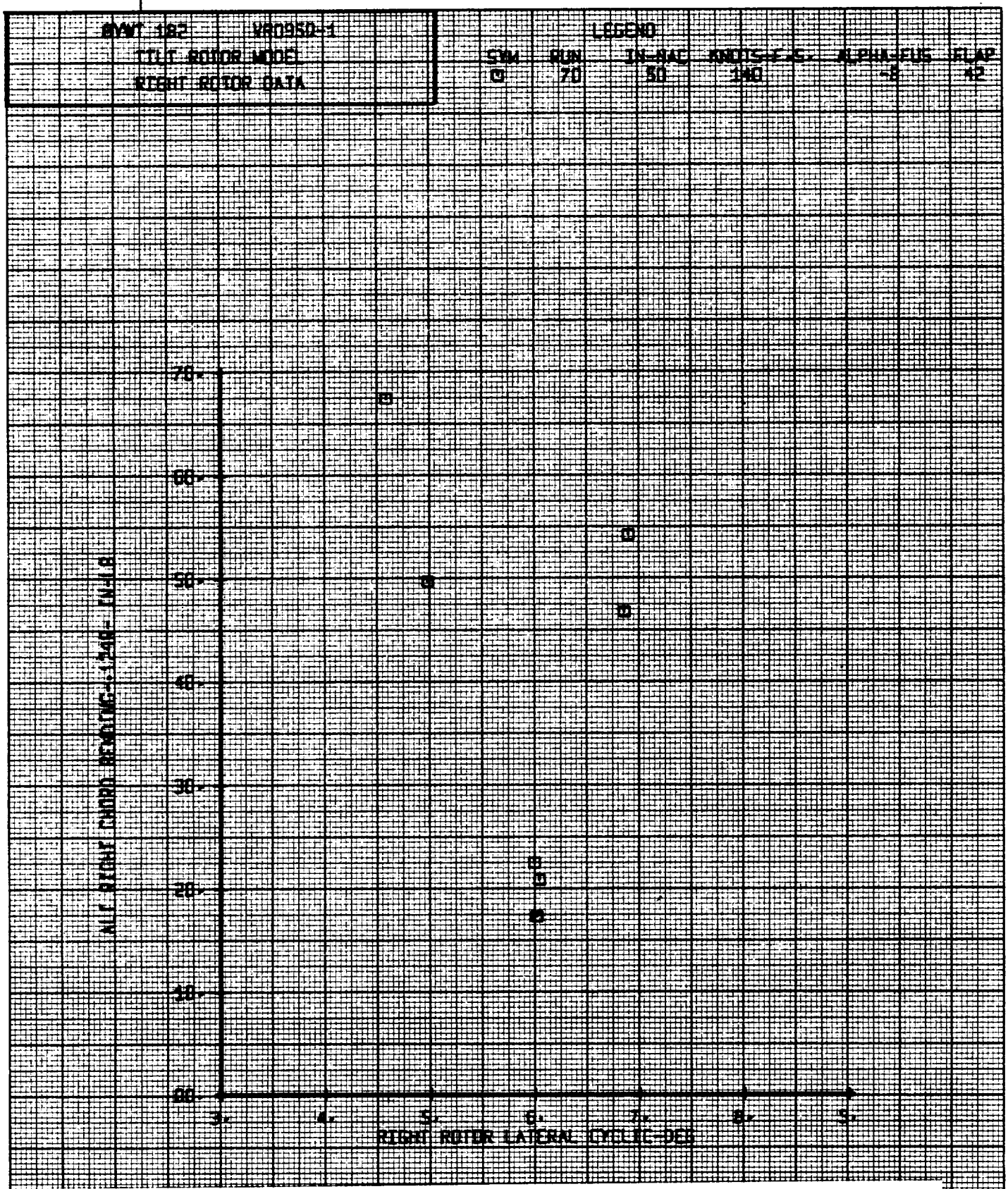


Figure 8-070. Alt. Right Chord Bending Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

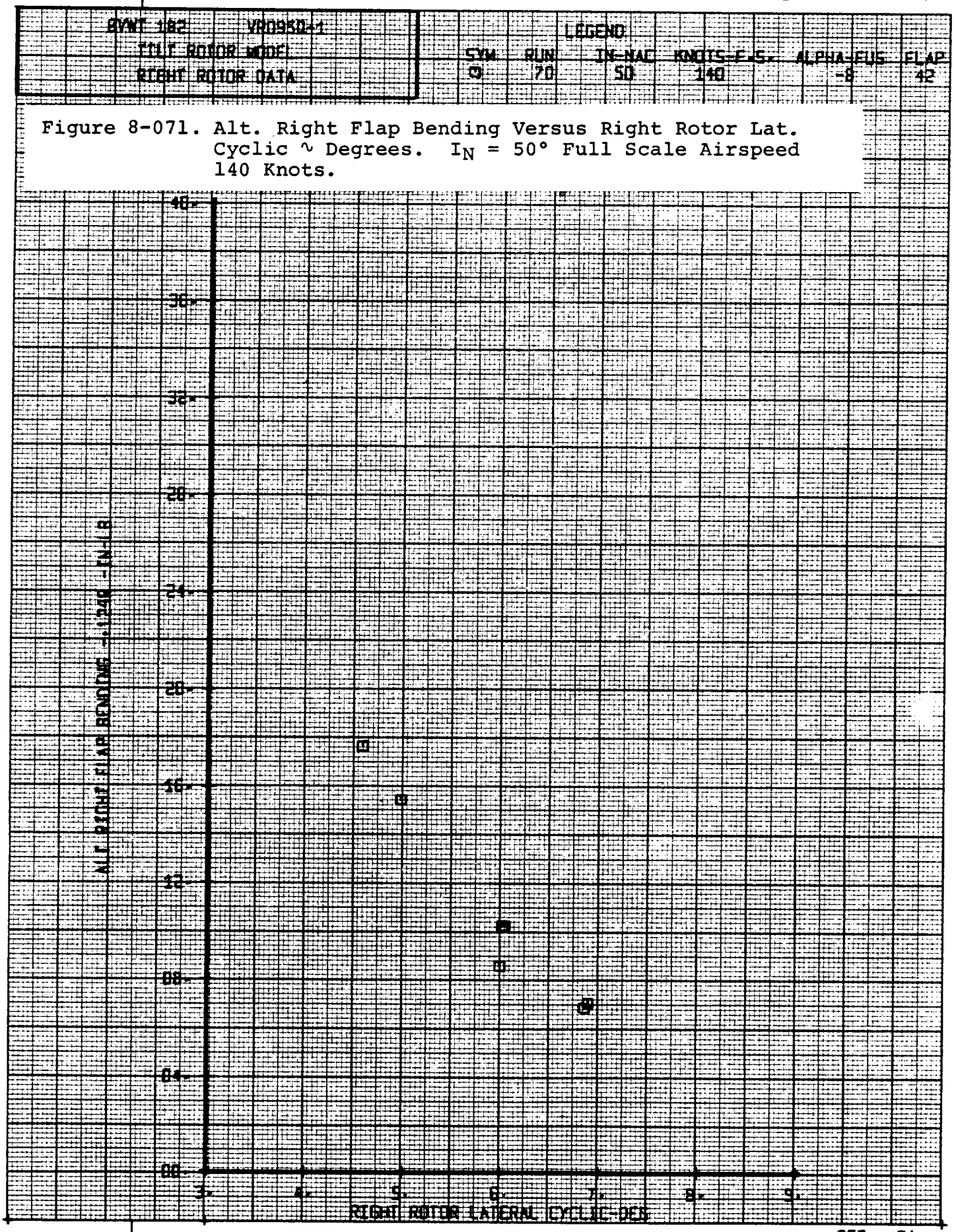


Figure 8-071. Alt. Right Flap Bending Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

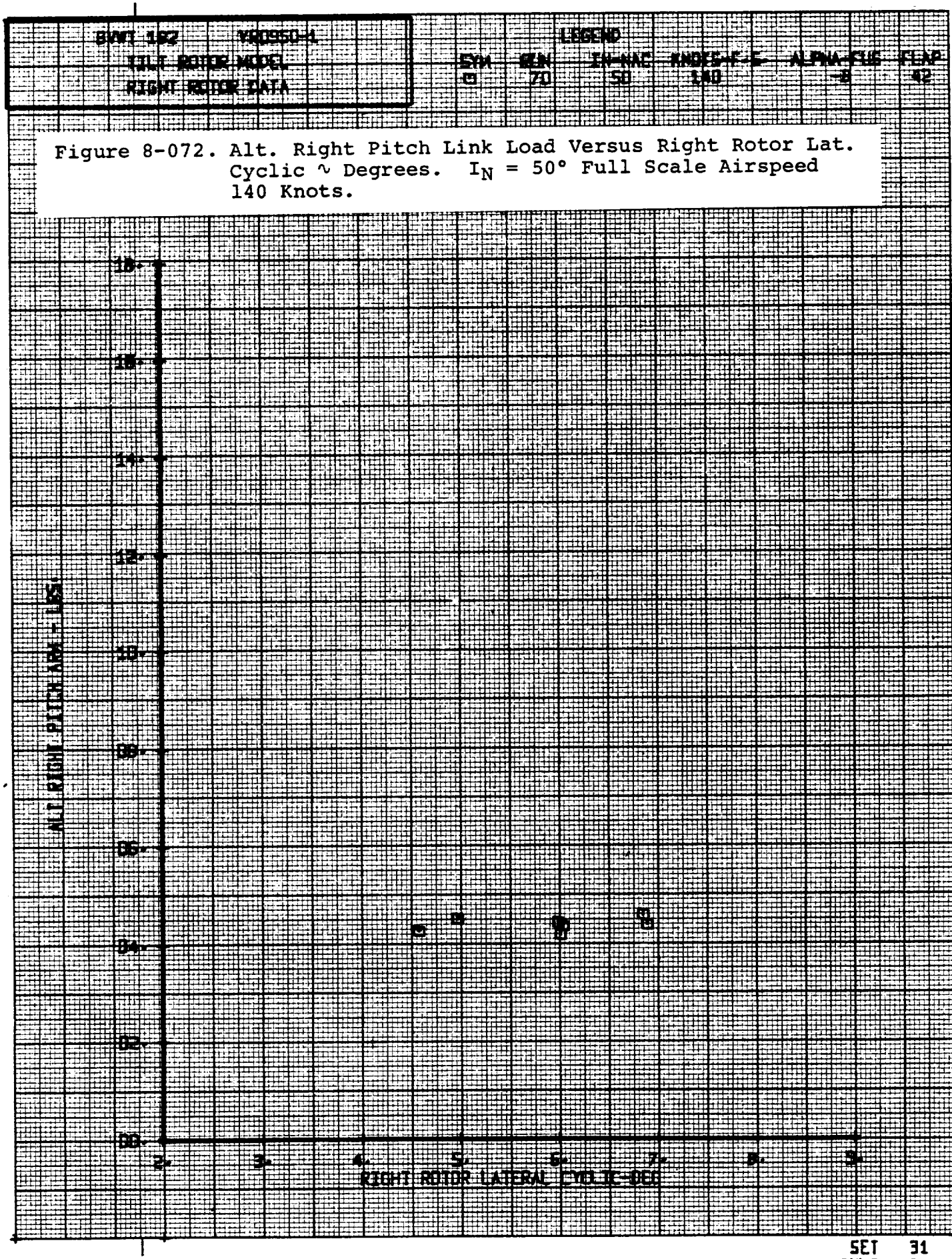


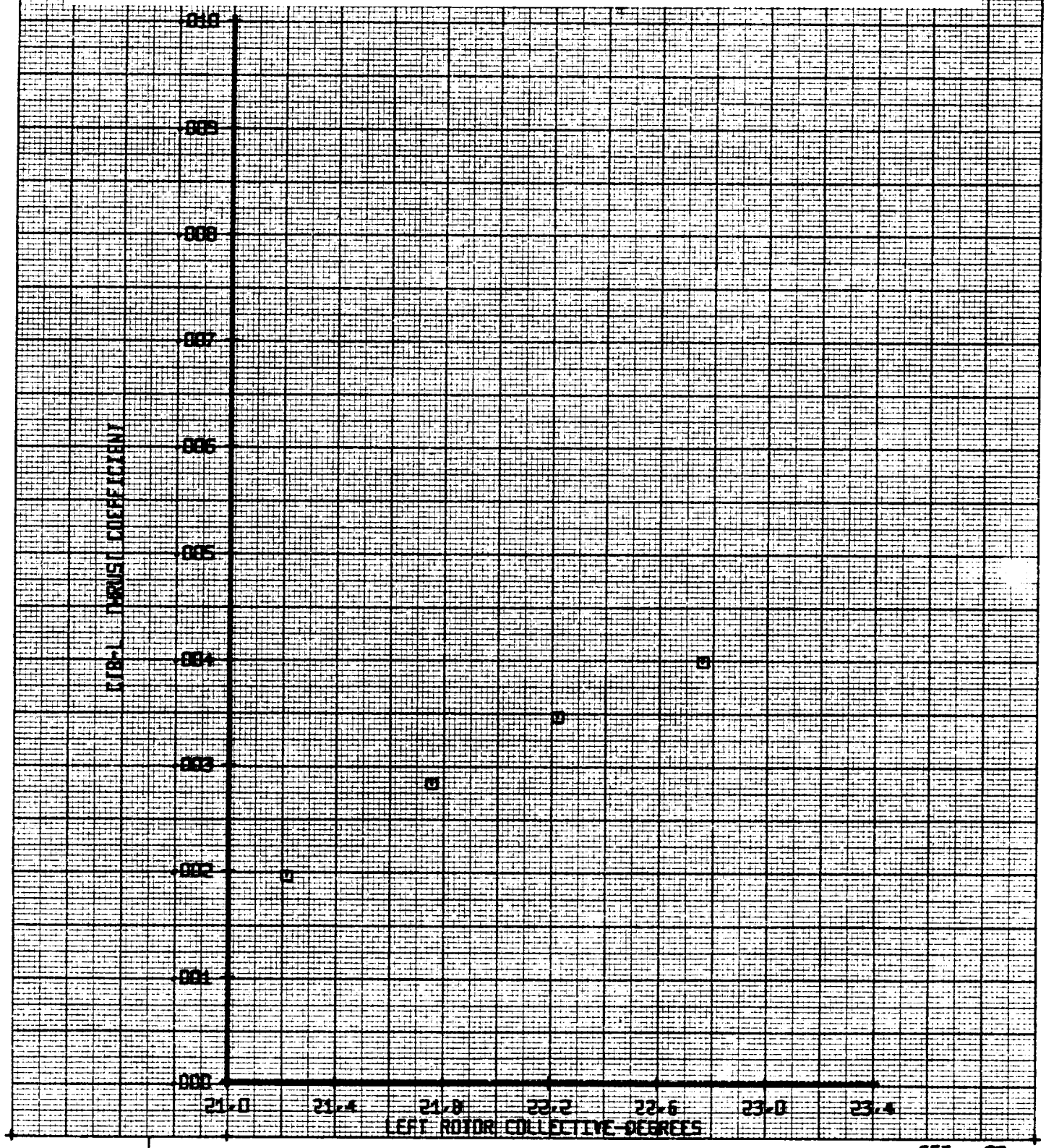
Figure 8-072. Alt. Right Pitch Link Load Versus Right Rotor Lat. Cyclic ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

BVWT 182 VR0950-1
TILT ROTOR MODEL
LEFT ROTOR DATA

LEGEND

SYM	RUN	IN-NAC	KNOTS-F.S.	ALPHA-FUS	FLAP
⊡	72	50	140	-8	42

Figure 8-073. Left Rotor Thrust Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.



SET 33
BVWT 182

SET 33
BVWT 182

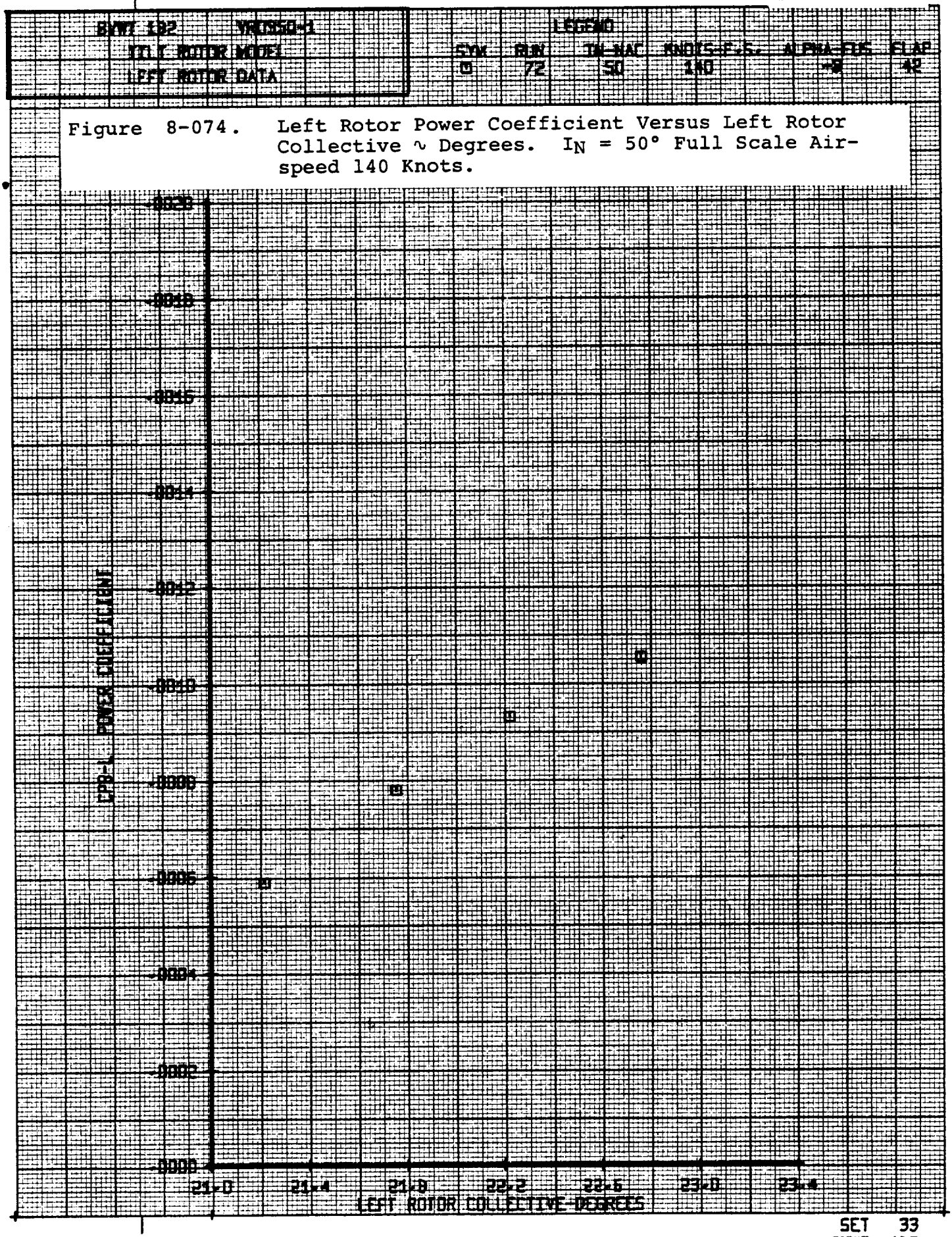


Figure 8-074. Left Rotor Power Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

33
182

SET 33
BVWT 182

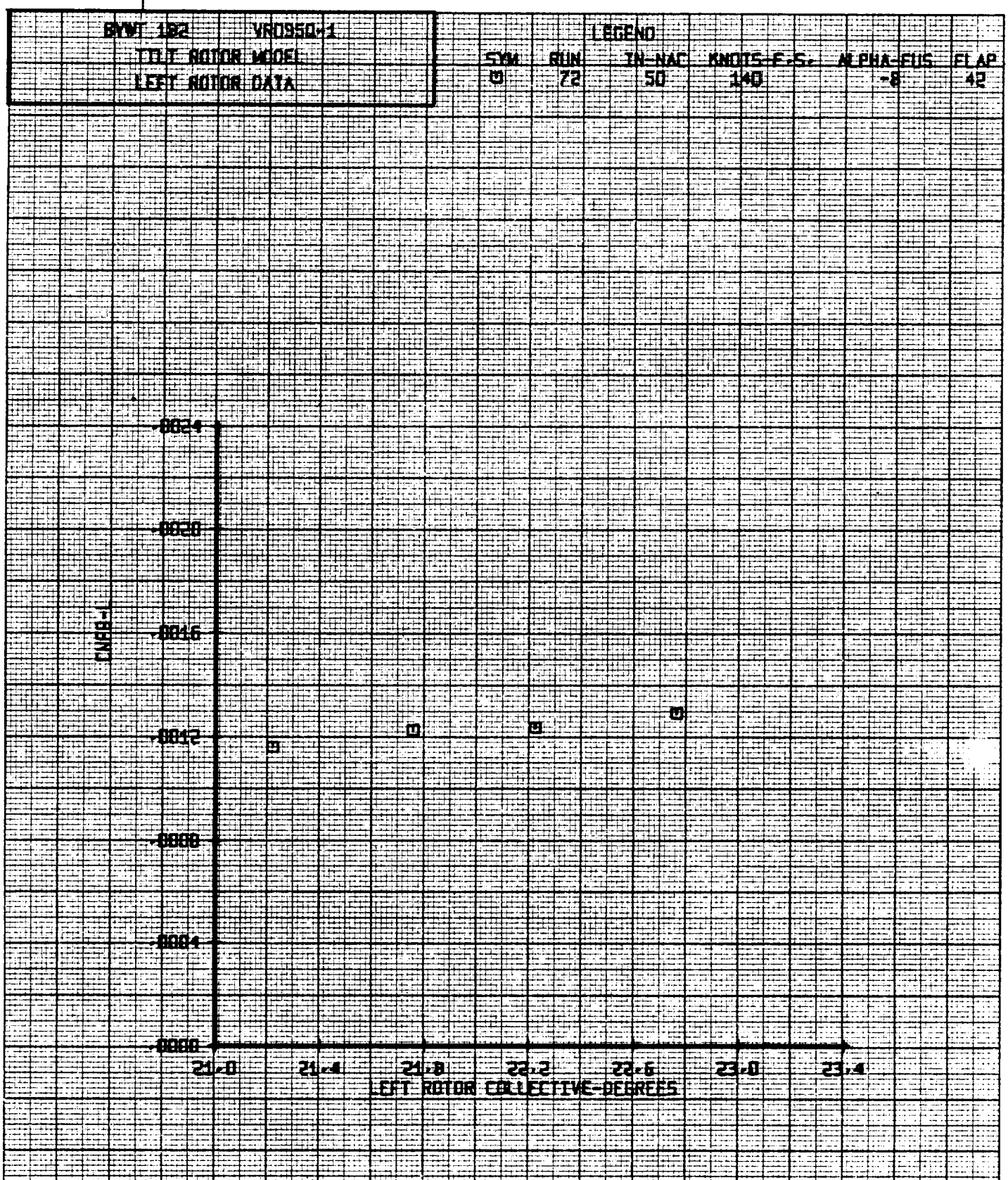


Figure 8-075. Left Rotor Normal Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

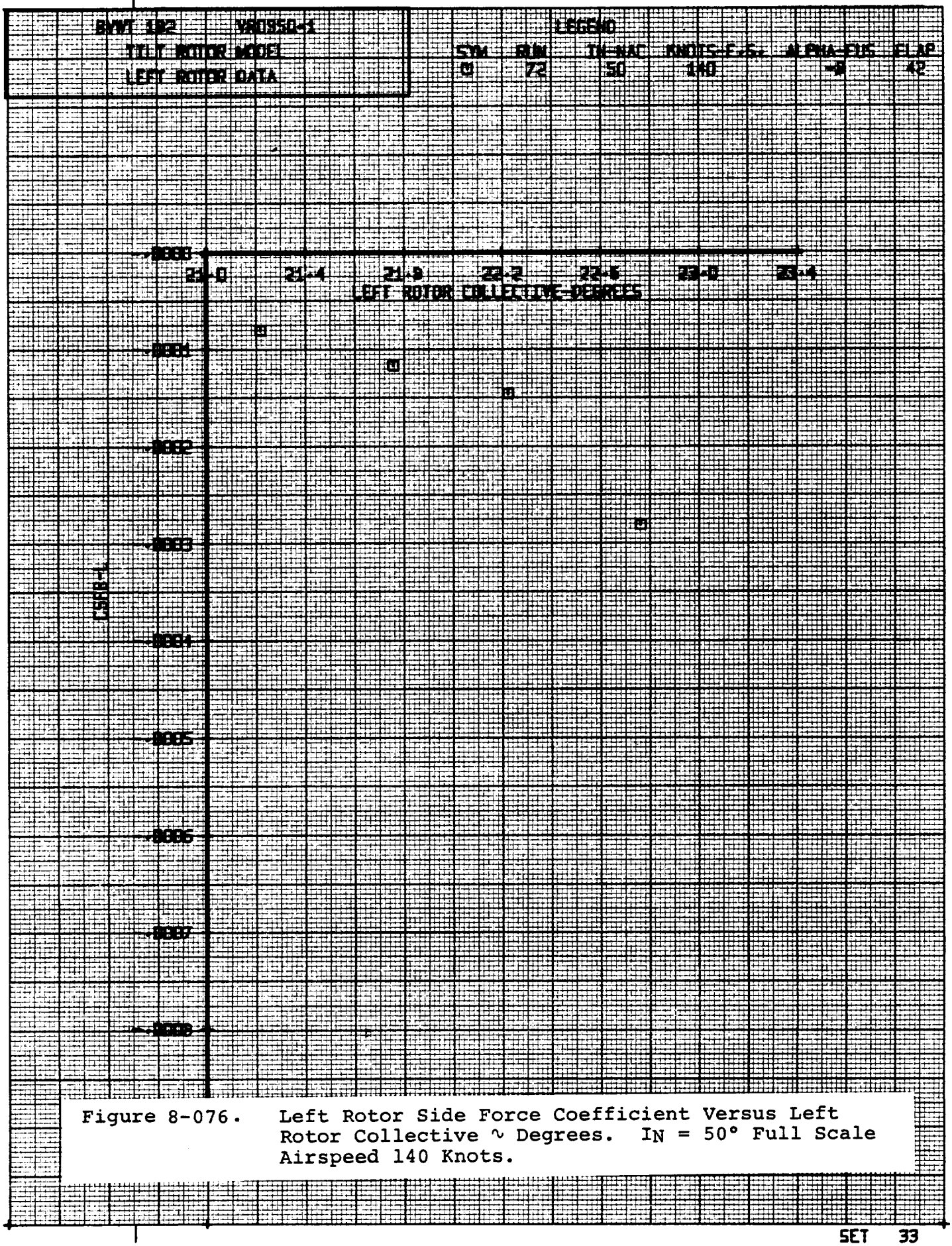


Figure 8-076. Left Rotor Side Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

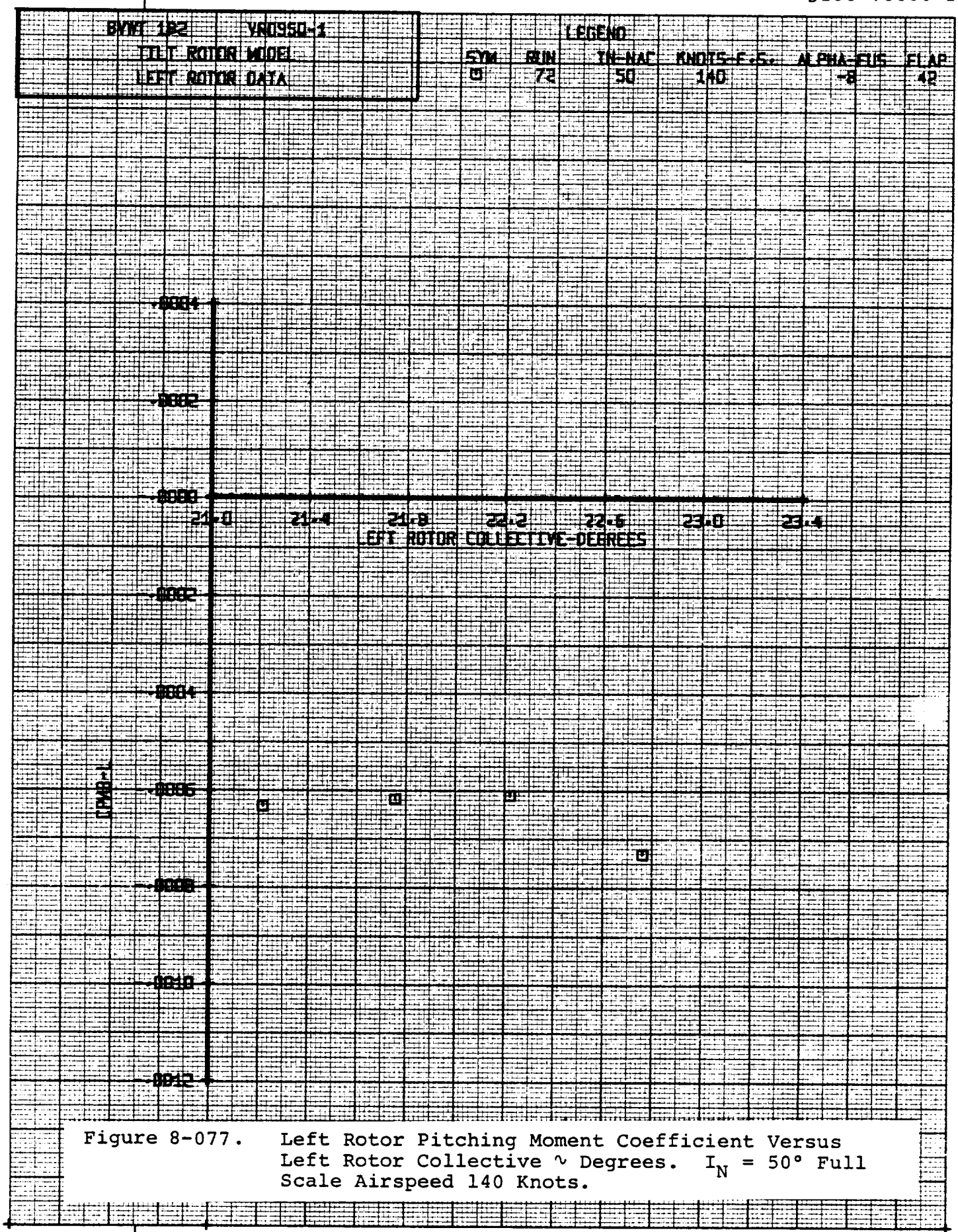


Figure 8-077. Left Rotor Pitching Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

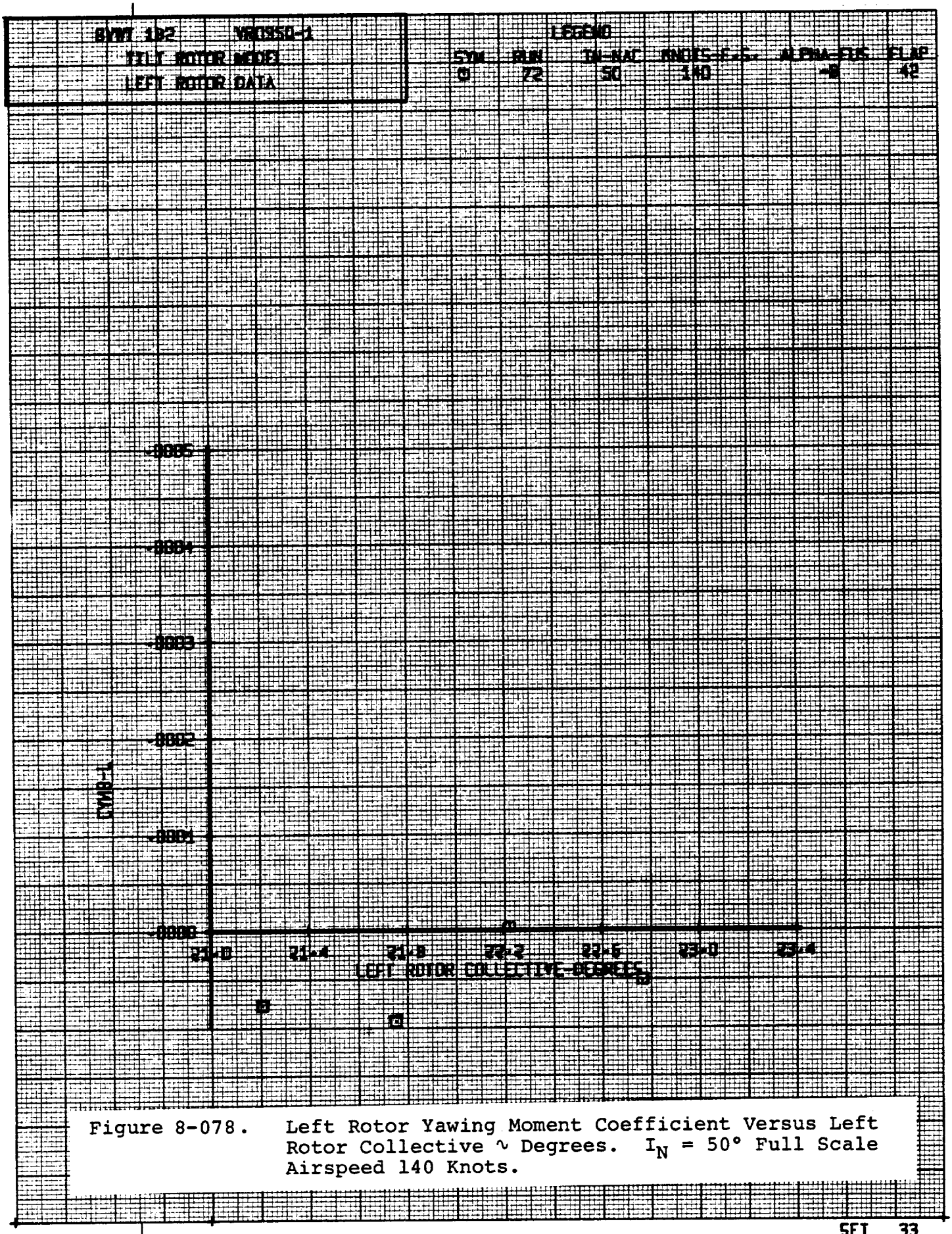


Figure 8-078. Left Rotor Yawing Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

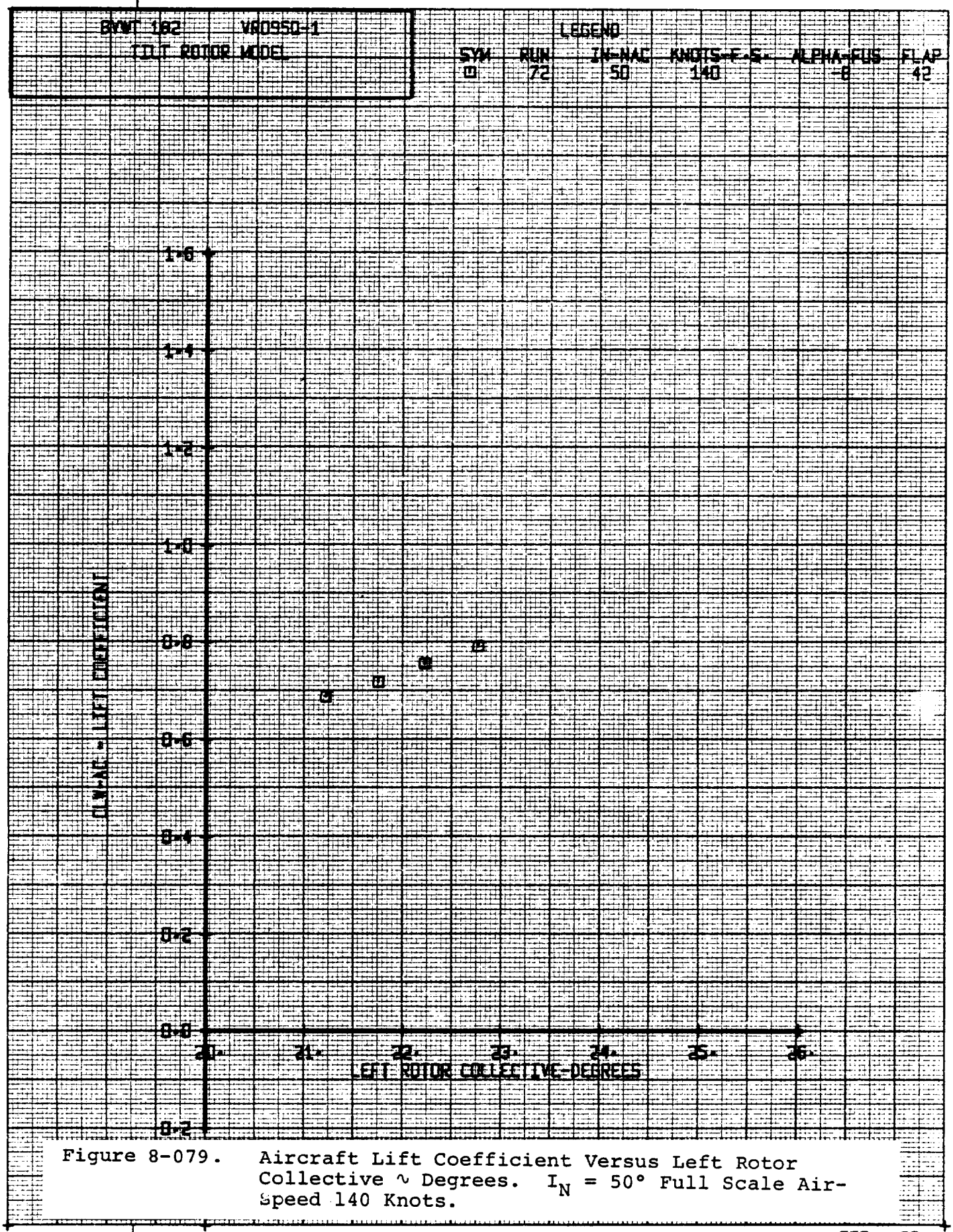


Figure 8-079. Aircraft Lift Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

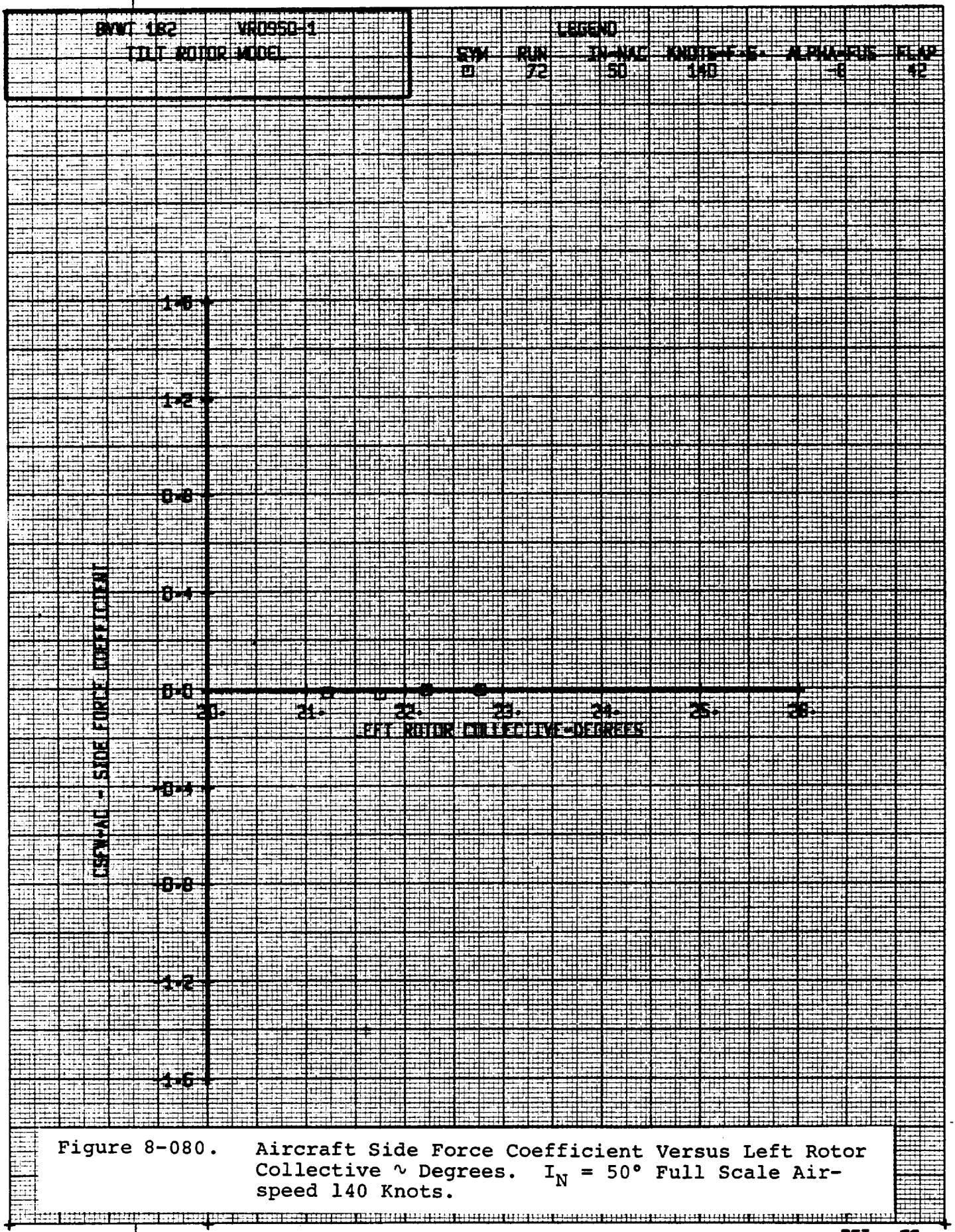


Figure 8-080. Aircraft Side Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

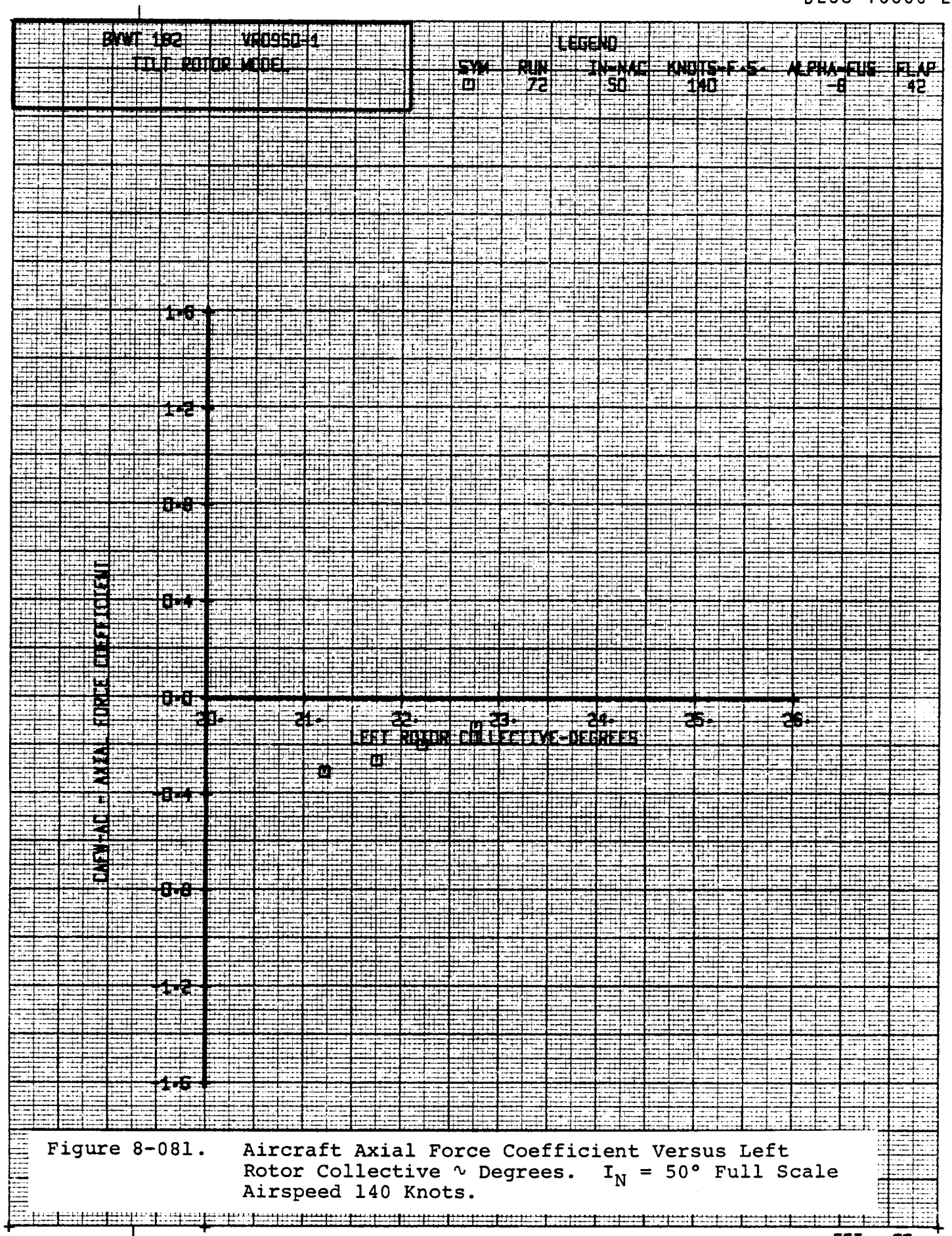


Figure 8-081. Aircraft Axial Force Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

SET 33
BVWT 182

SET 33
BVWT 182

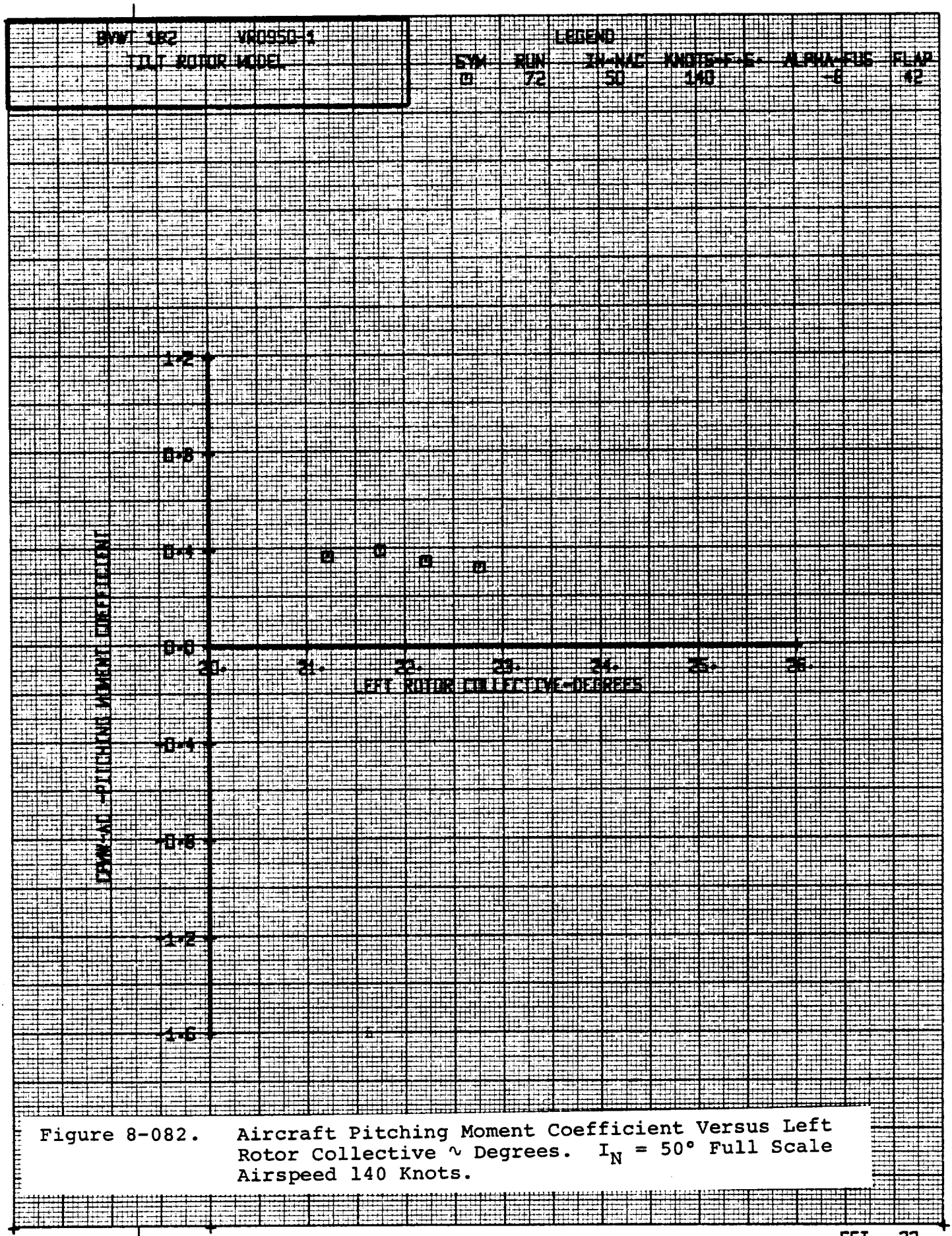


Figure 8-082. Aircraft Pitching Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

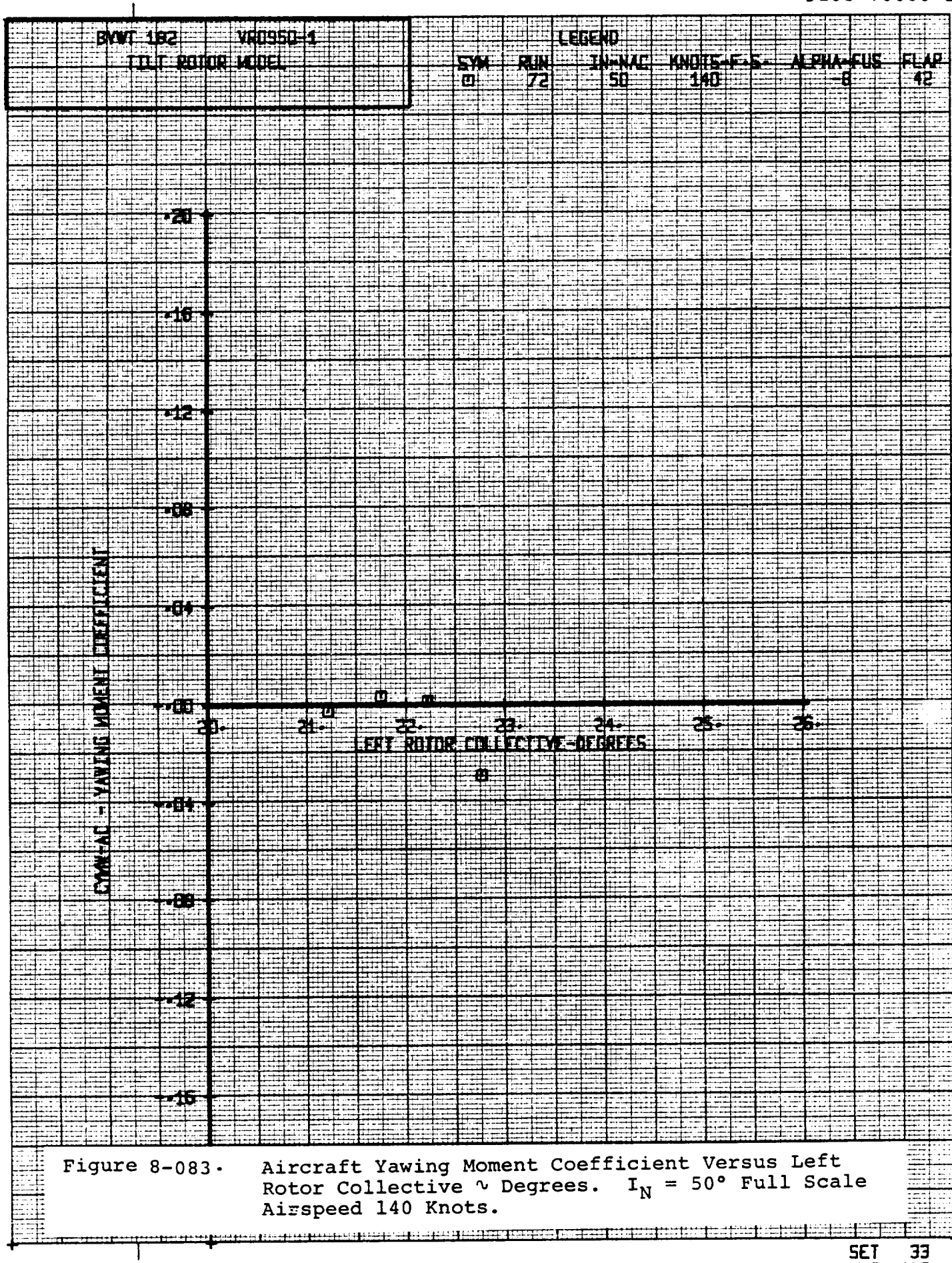


Figure 8-083. Aircraft Yawing Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

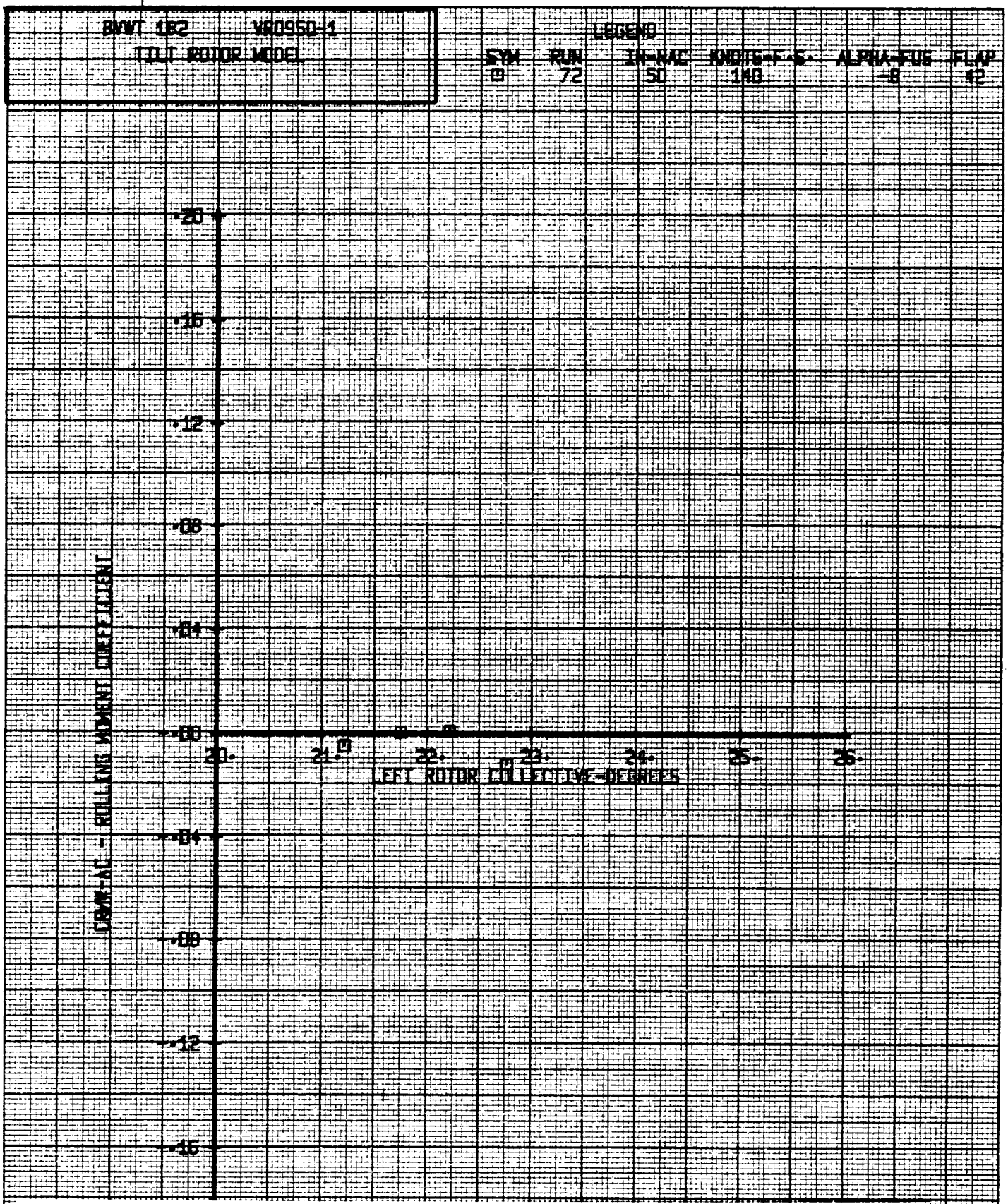


Figure 8-084. Aircraft Rolling Moment Coefficient Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

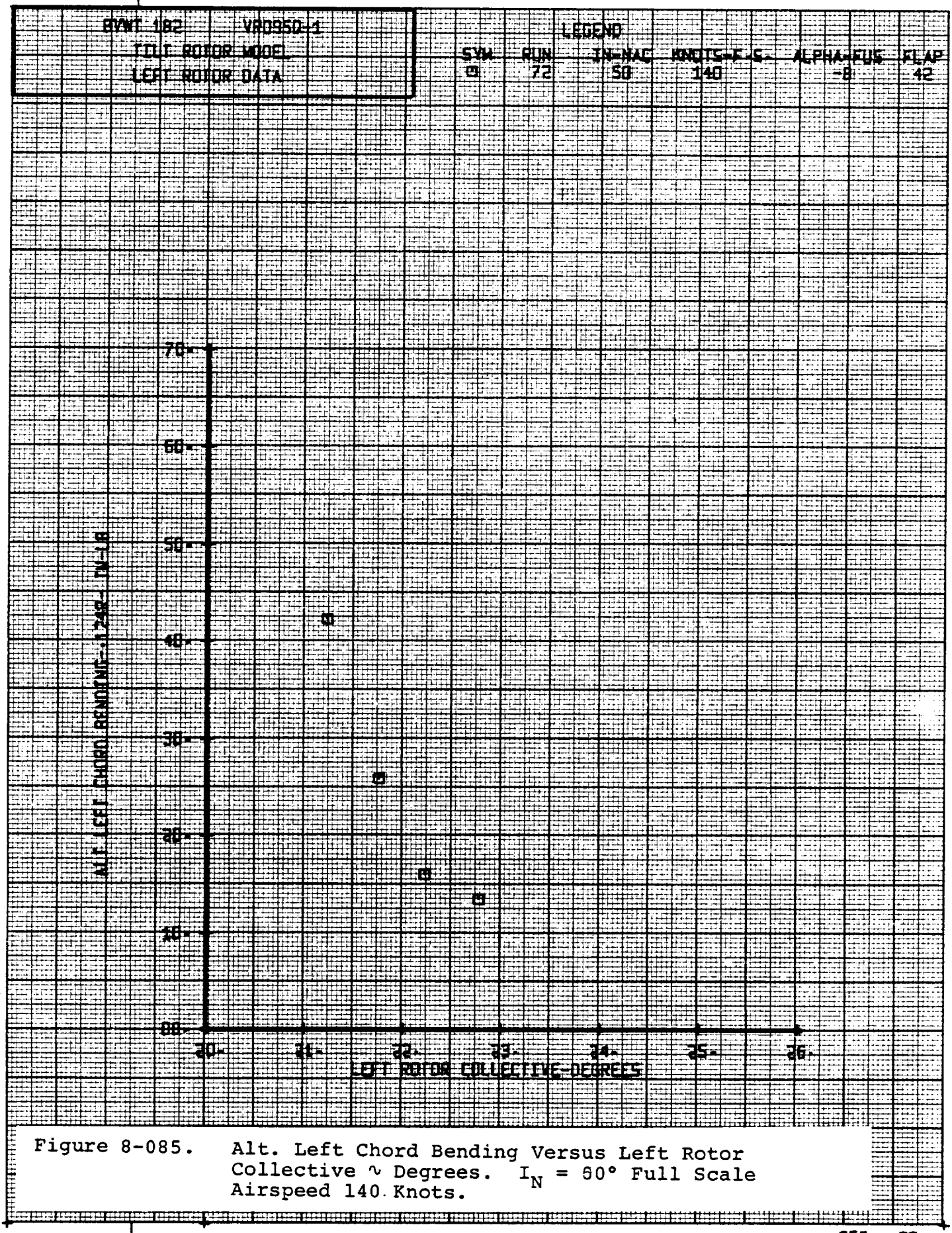


Figure 8-085. Alt. Left Chord Bending Versus Left Rotor Collective ∿ Degrees. I_N = 60° Full Scale Airspeed 140 Knots.

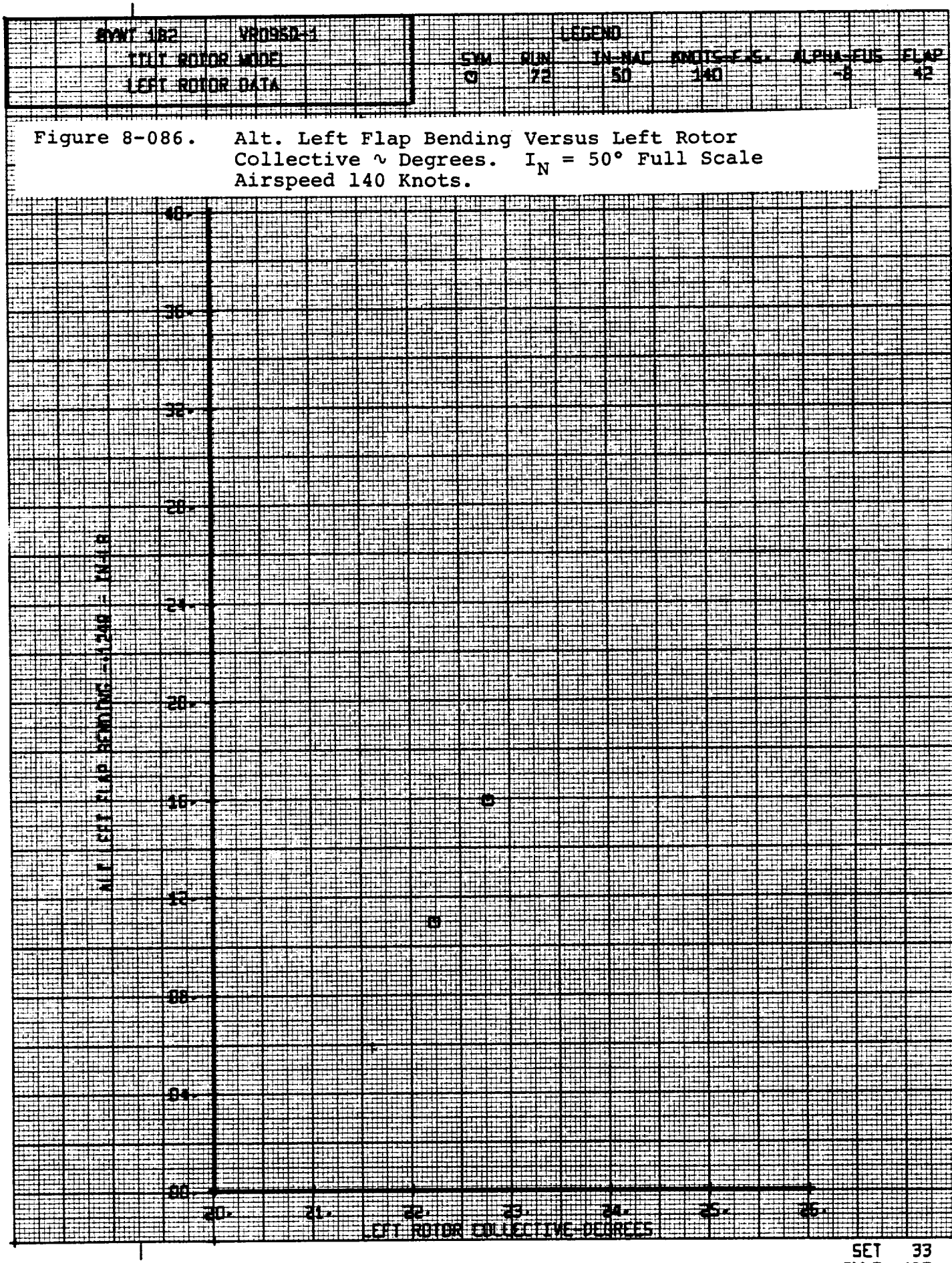


Figure 8-086. Alt. Left Flap Bending Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

33
182

SET 33
BVWT 182

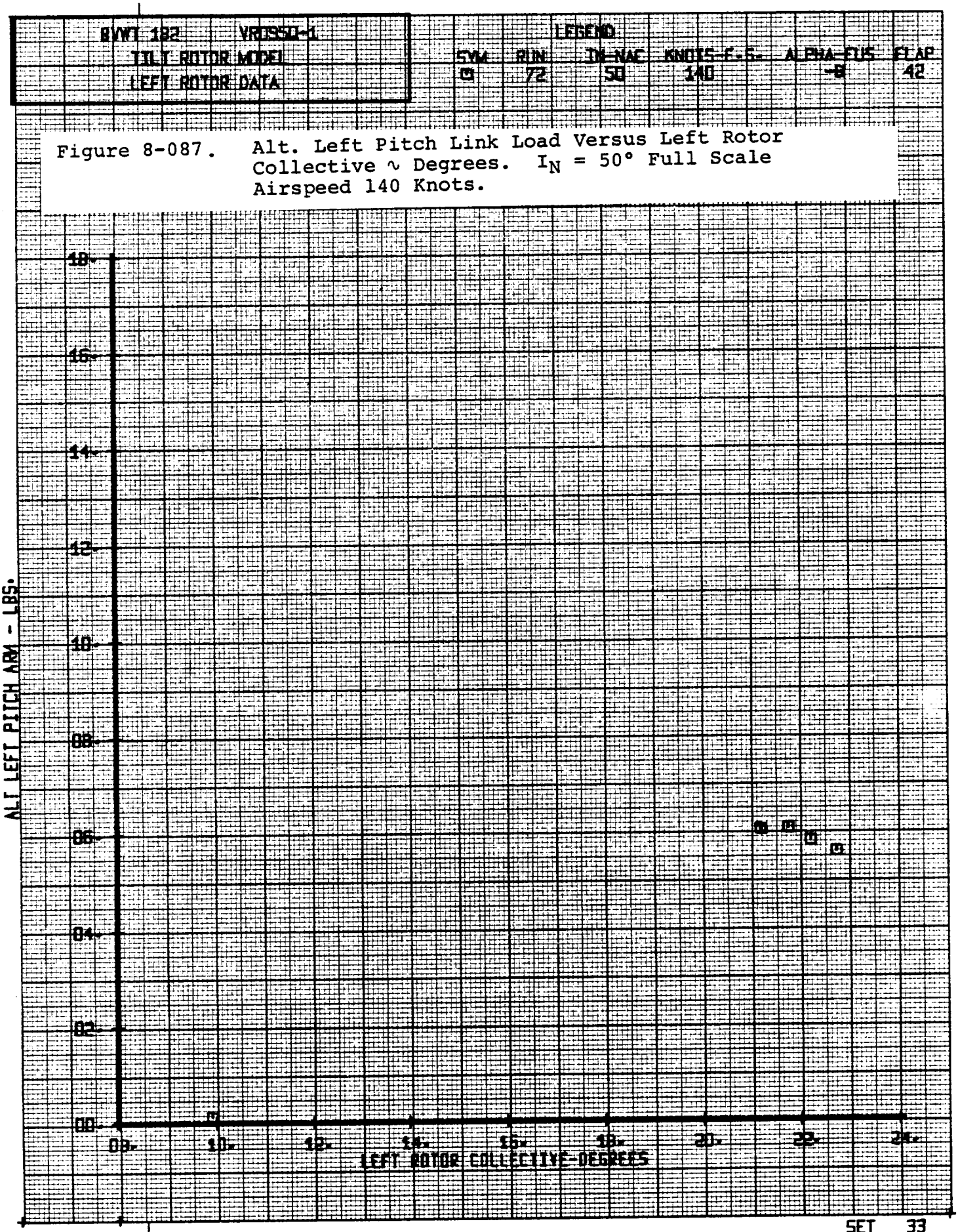


Figure 8-087. Alt. Left Pitch Link Load Versus Left Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

SET 33
BWT 182

SET 33
BWT 182

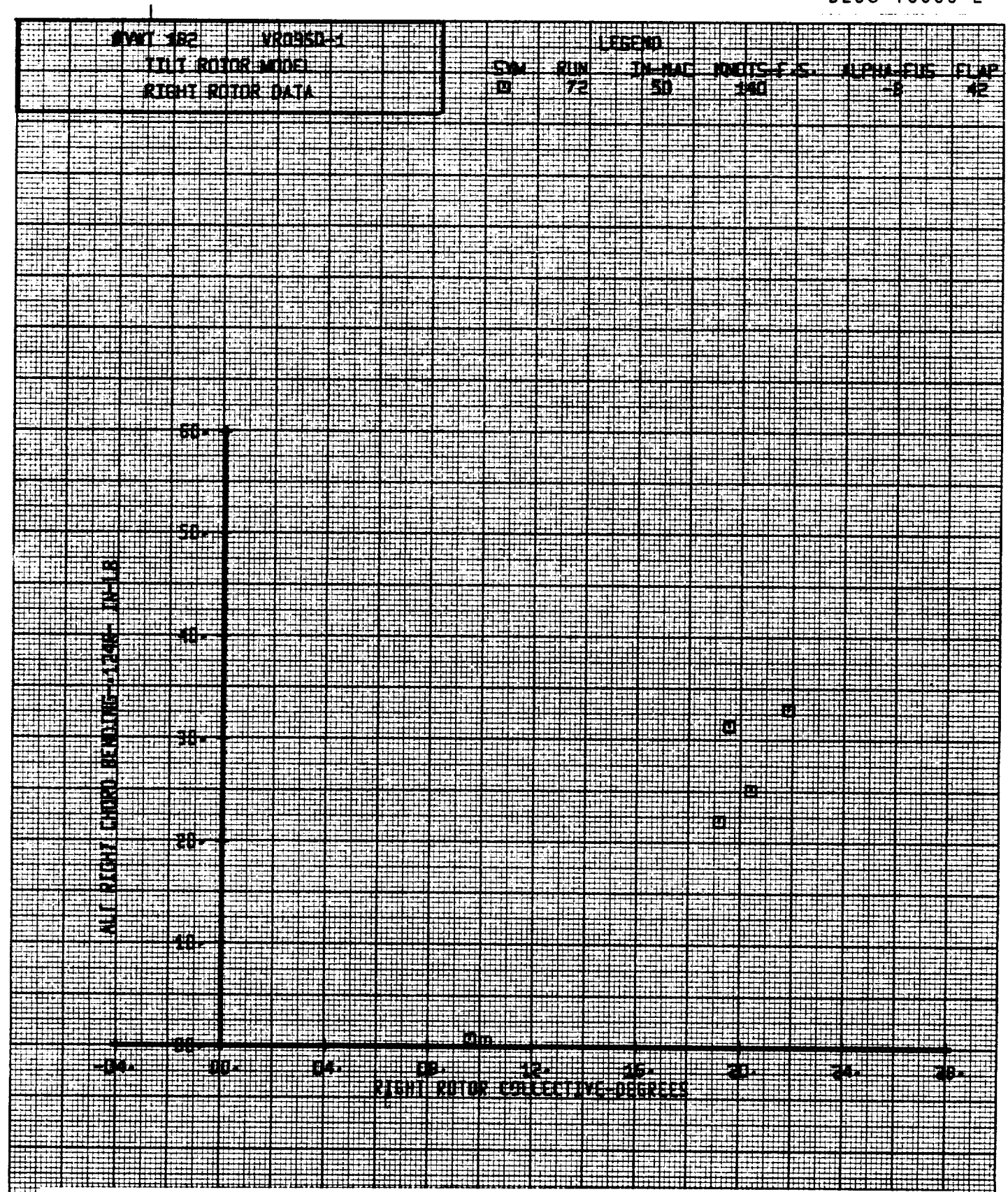


Figure 8-088. Alt. Right Chord Bending Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

33
182

SET 33
BVWT 182

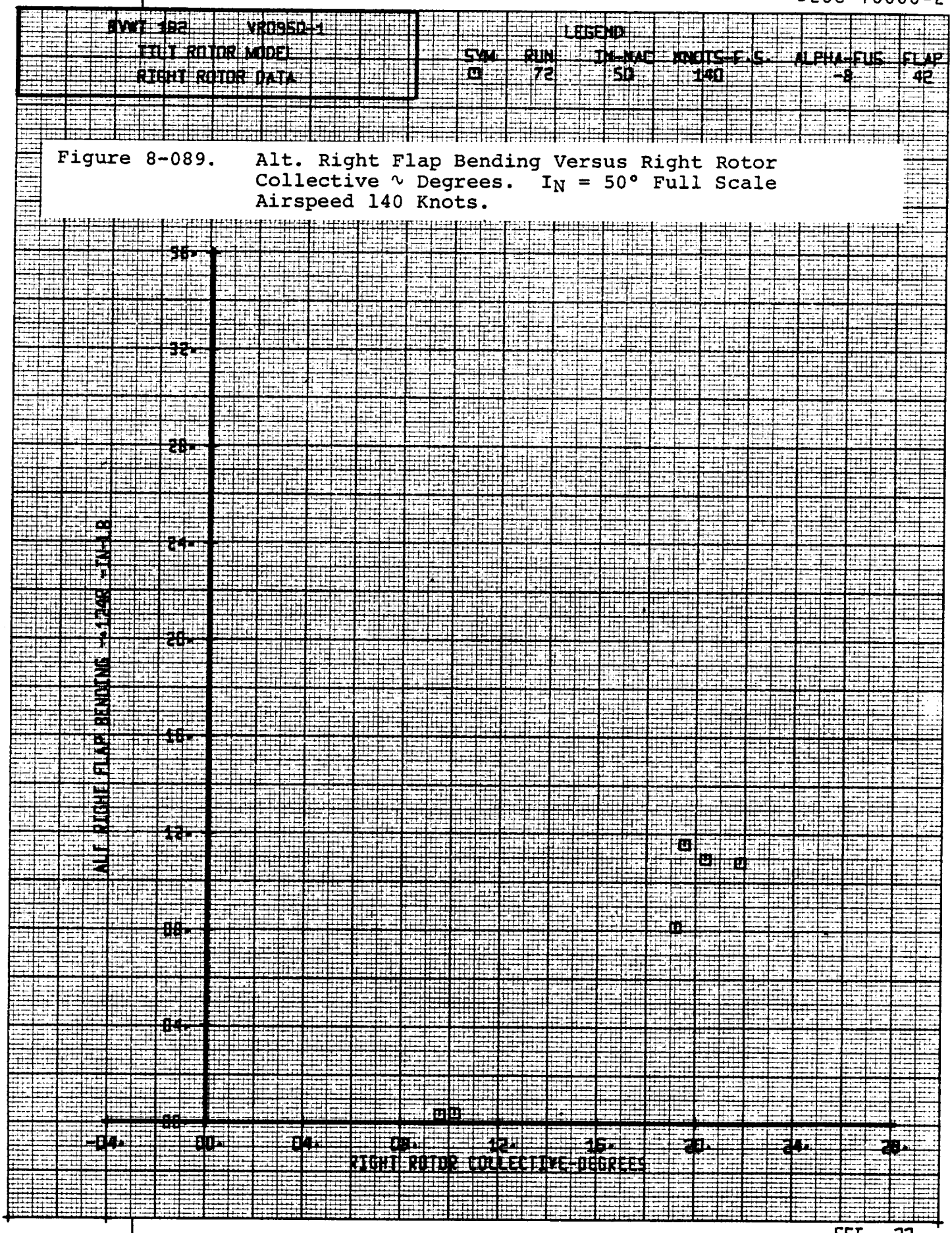


Figure 8-089. Alt. Right Flap Bending Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

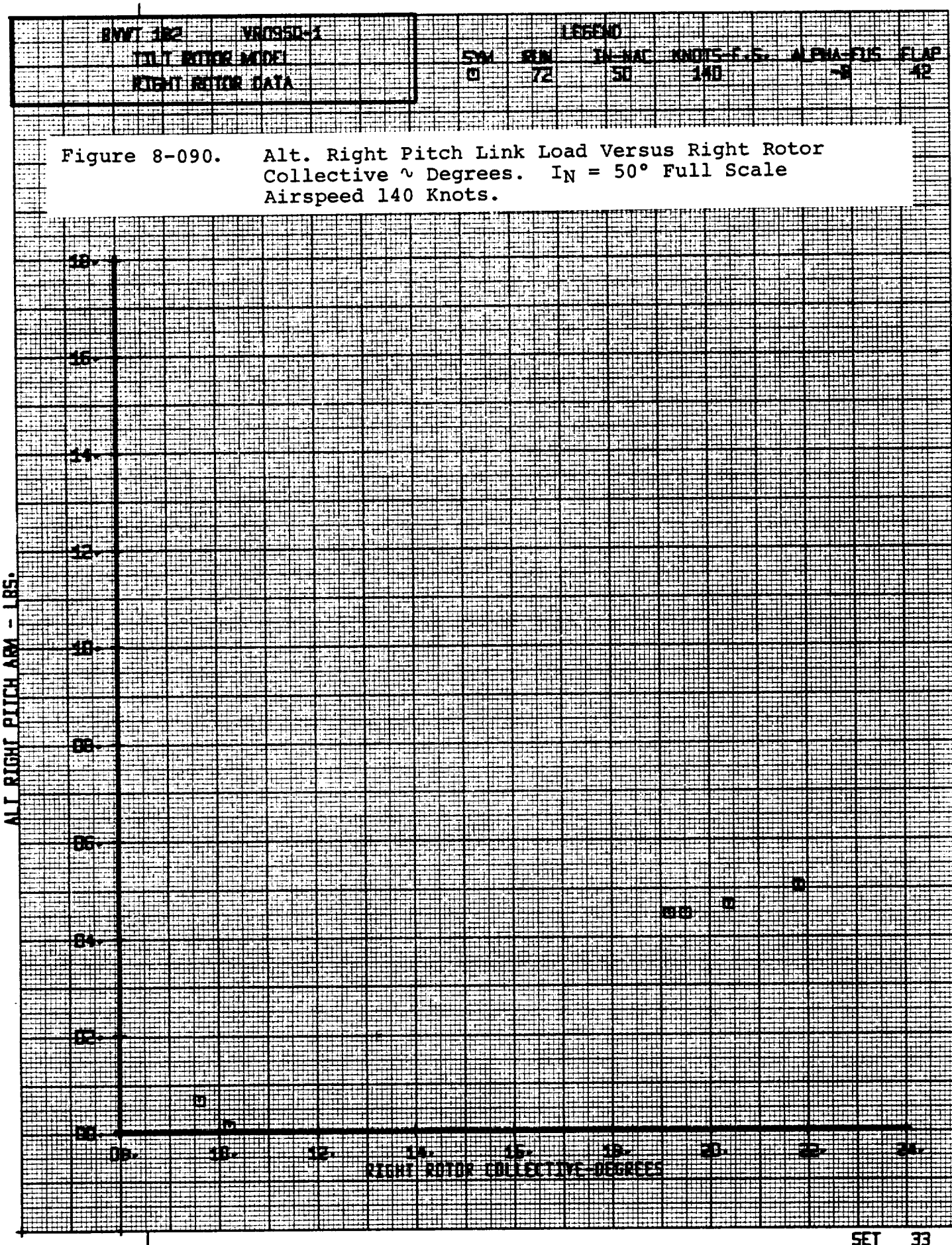


Figure 8-090. Alt. Right Pitch Link Load Versus Right Rotor Collective ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

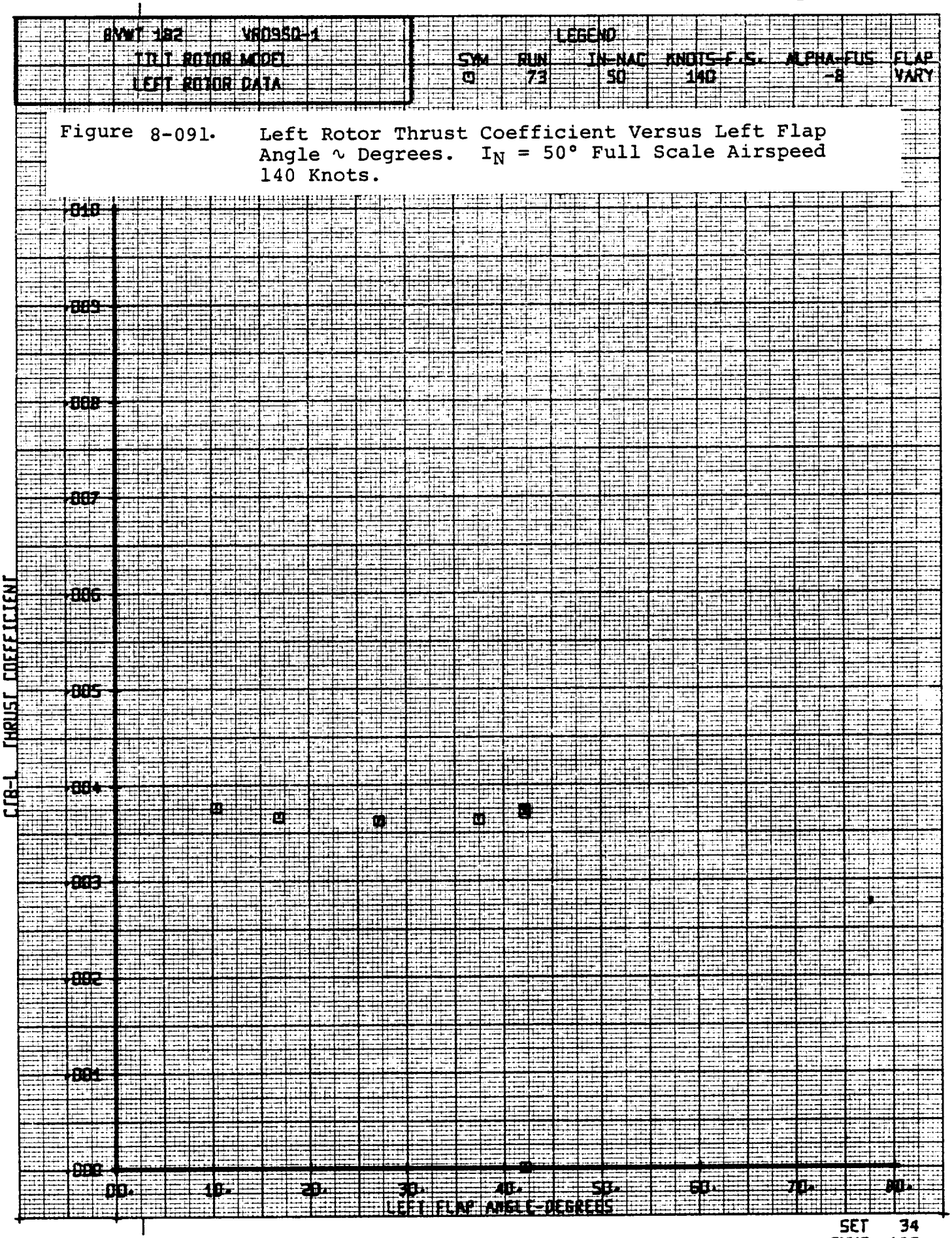


Figure 8-091. Left Rotor Thrust Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

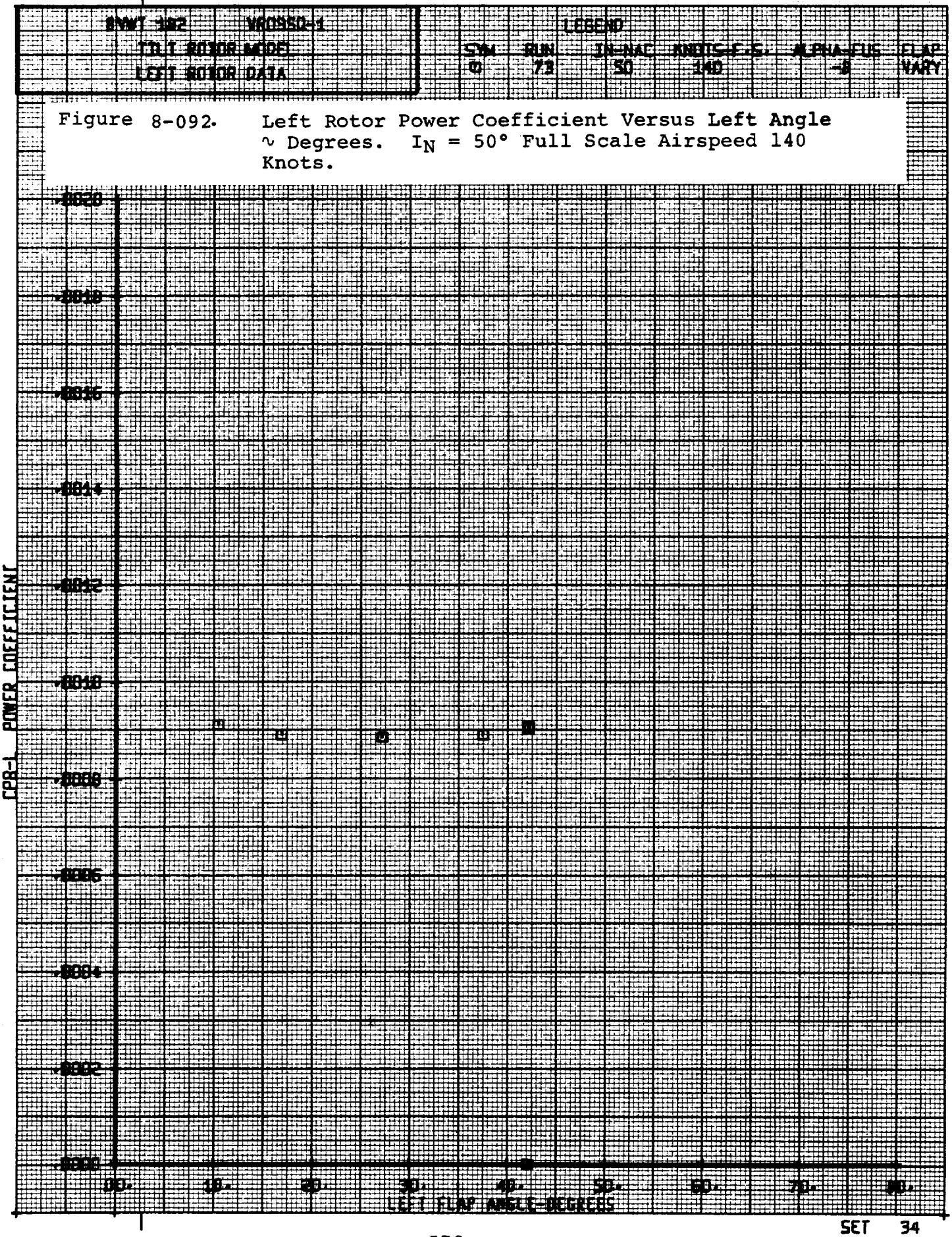


Figure 8-092. Left Rotor Power Coefficient Versus Left Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

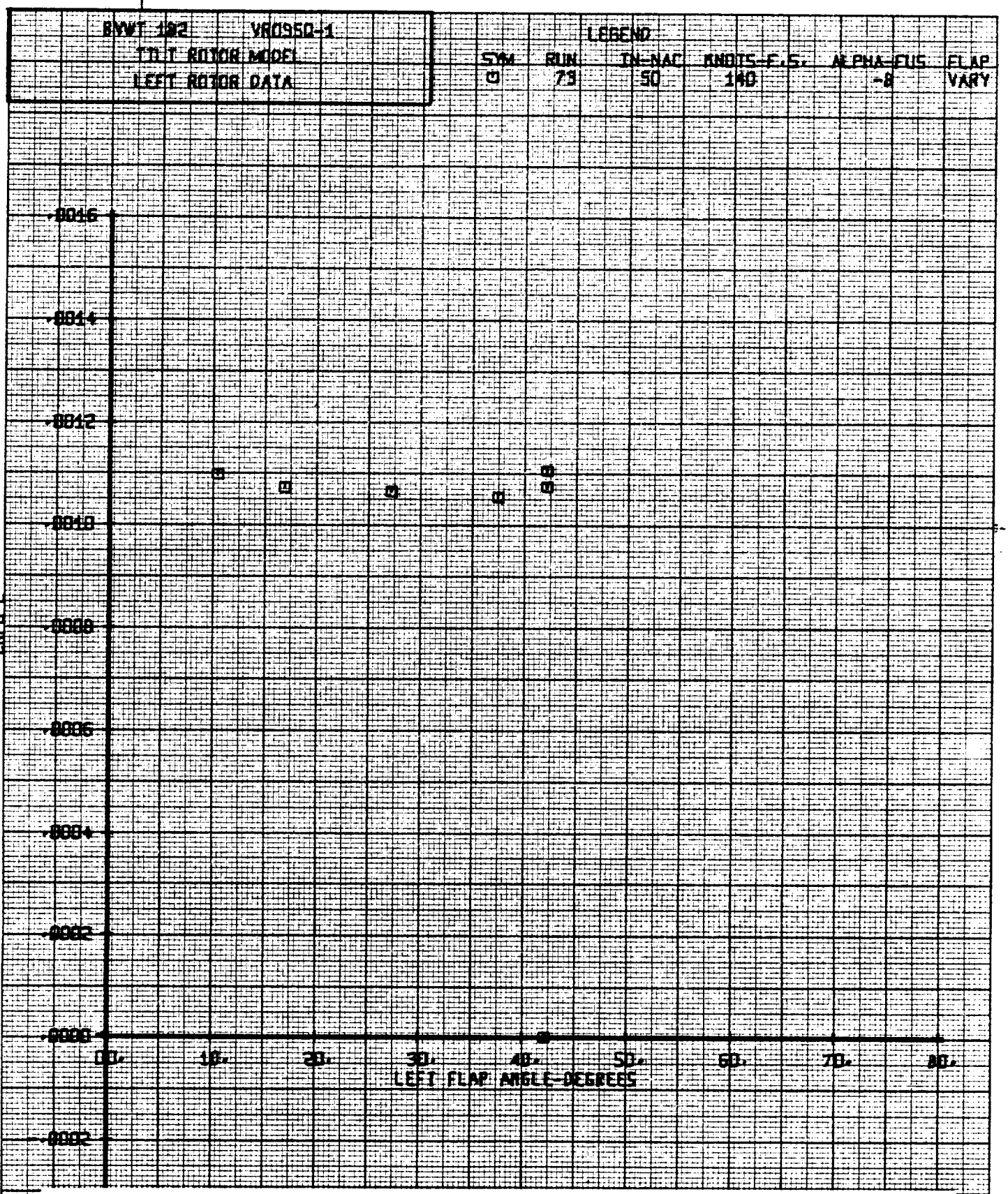


Figure 8-093. Left Rotor Normal Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

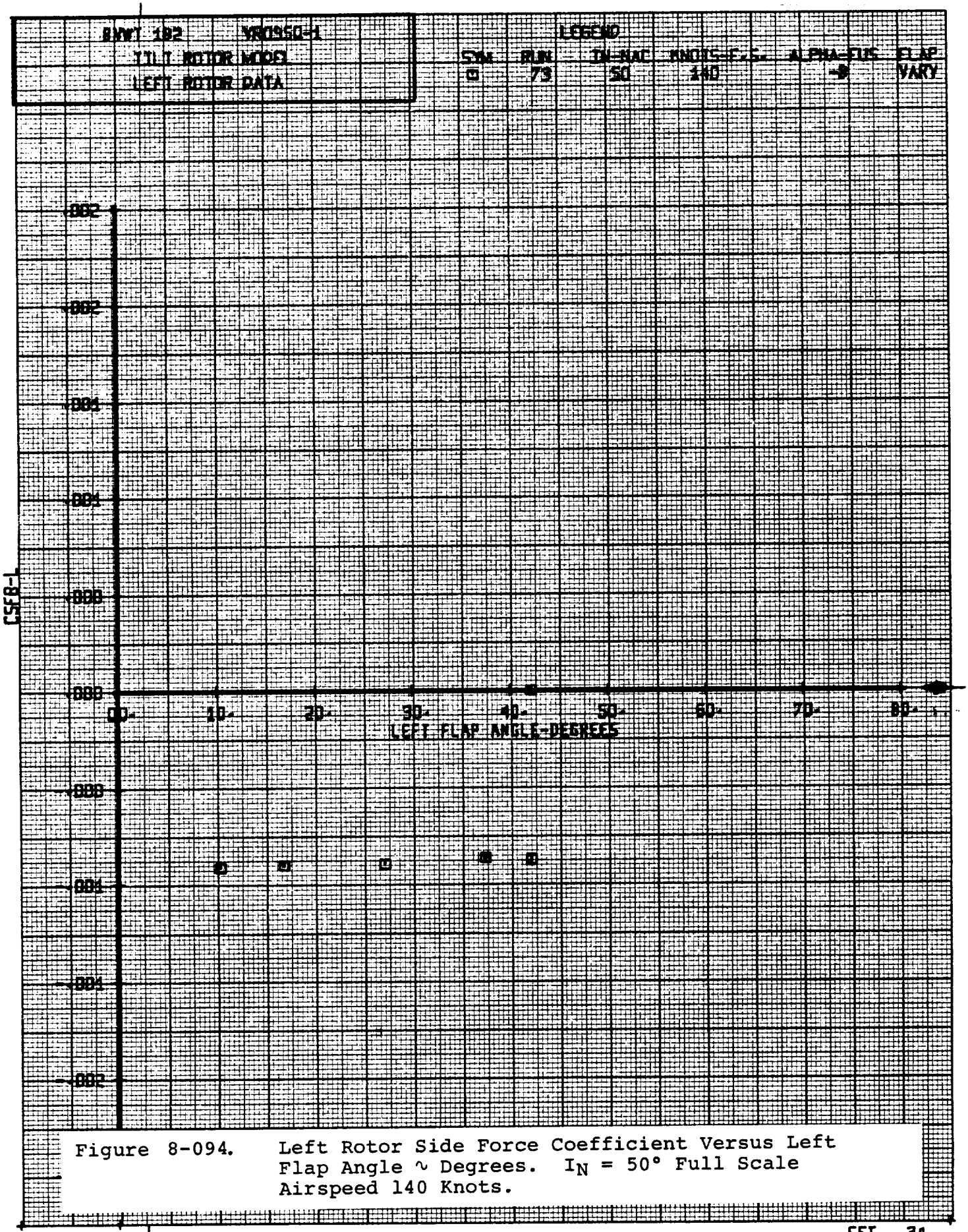


Figure 8-094. Left Rotor Side Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

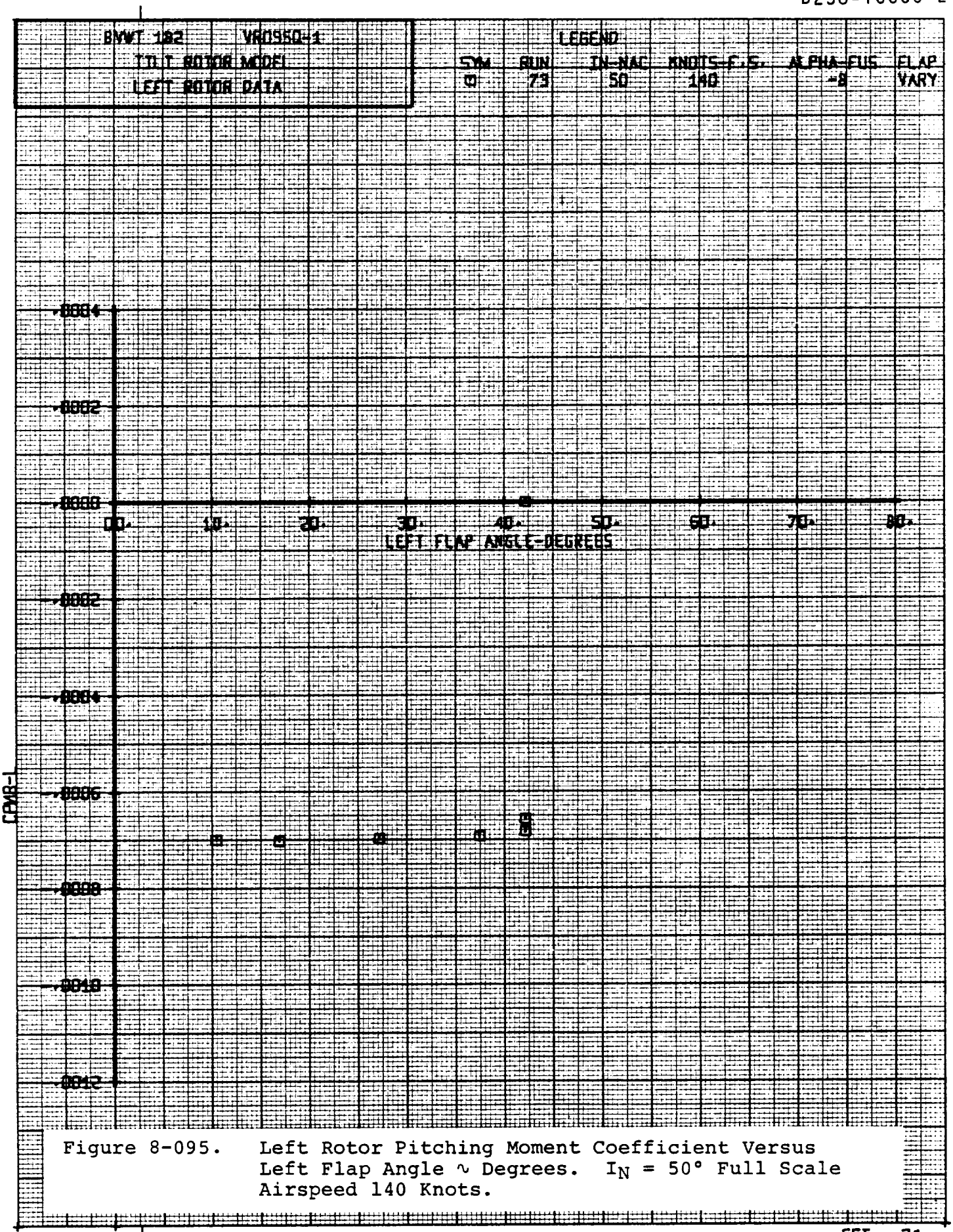


Figure 8-095. Left Rotor Pitching Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

ET 34
WT 182

SET 34
BVWT 182

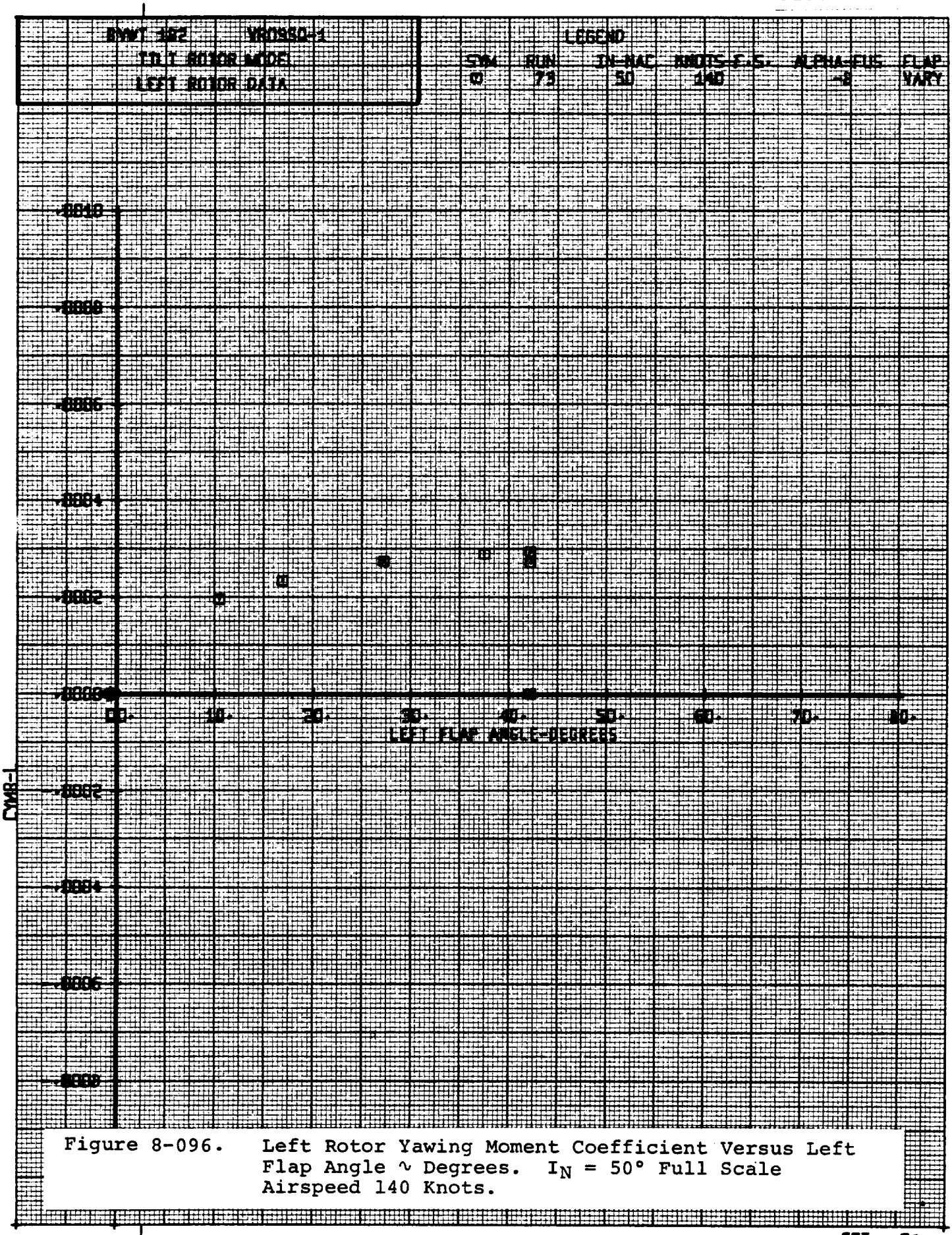


Figure 8-096. Left Rotor Yawing Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

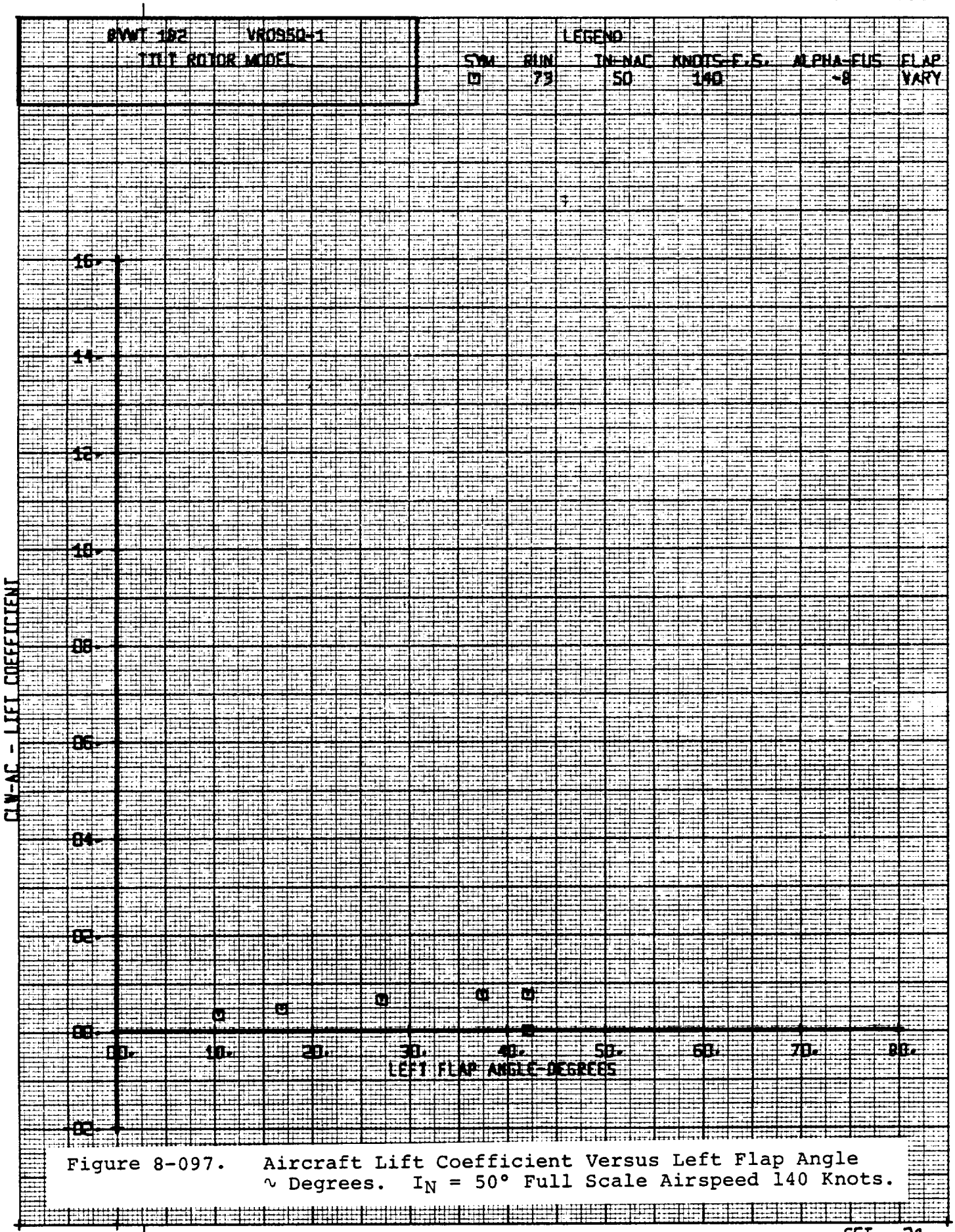


Figure 8-097. Aircraft Lift Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

ET 34
W 182

SET 34
BWT 182

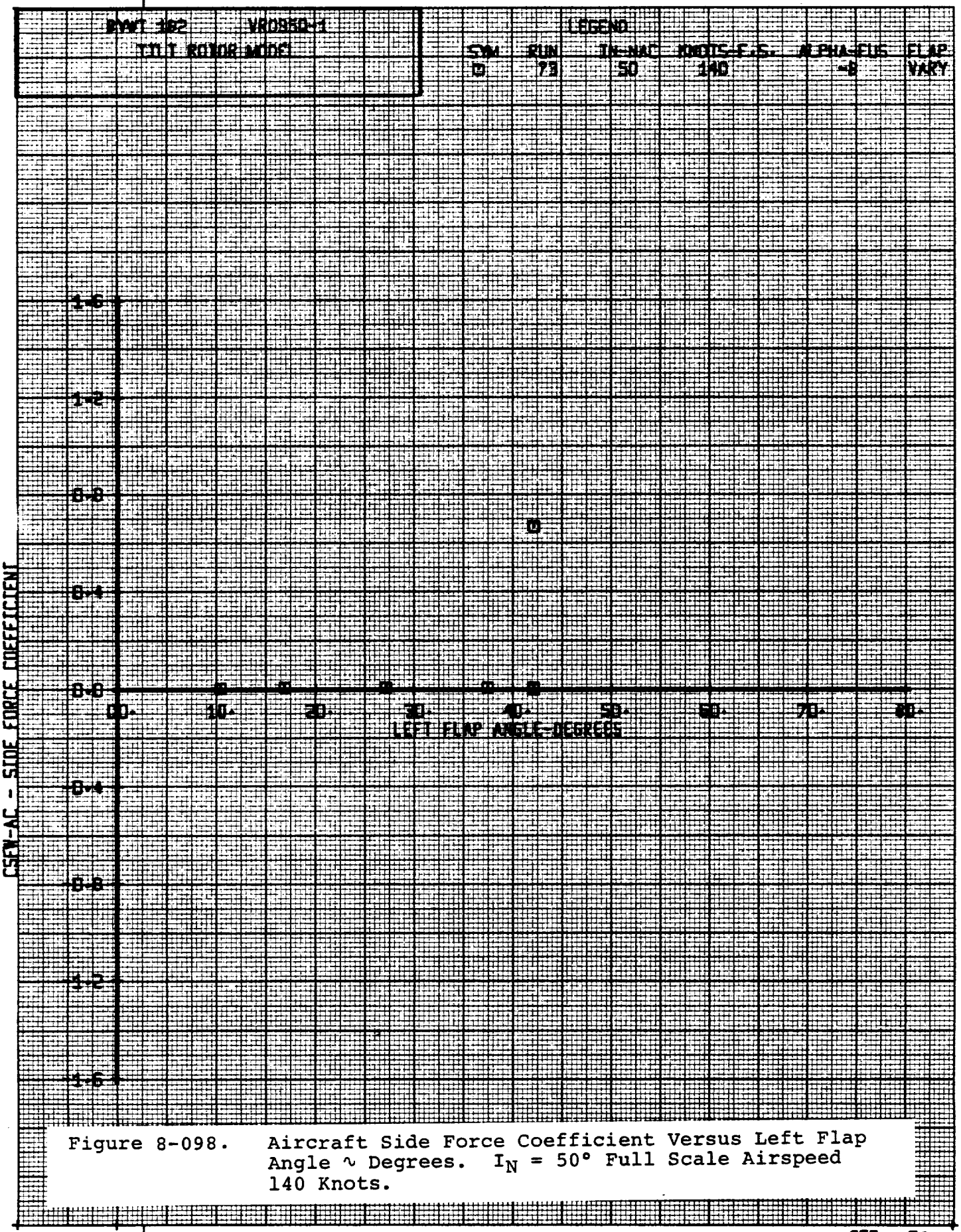


Figure 8-098. Aircraft Side Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

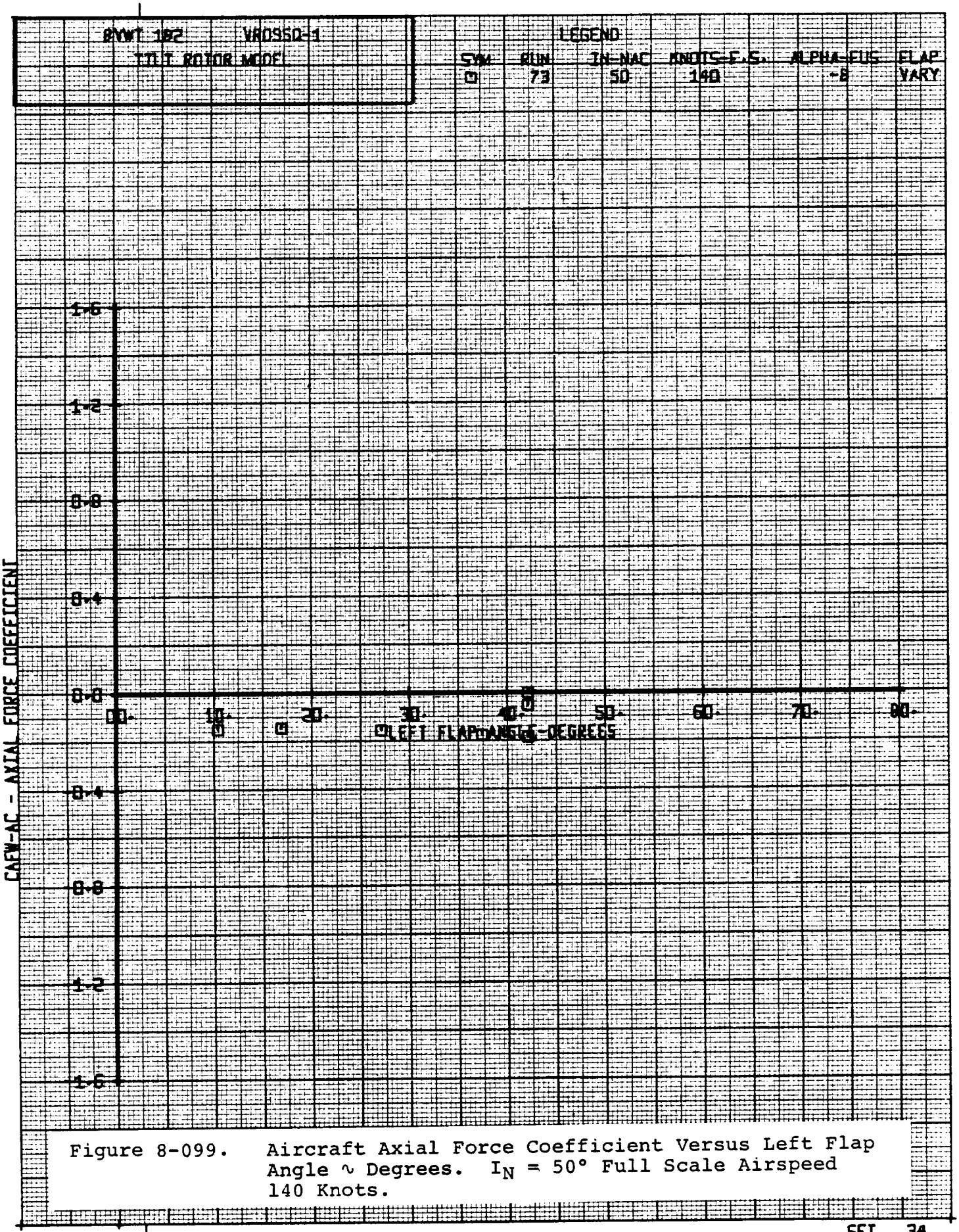


Figure 8-099. Aircraft Axial Force Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

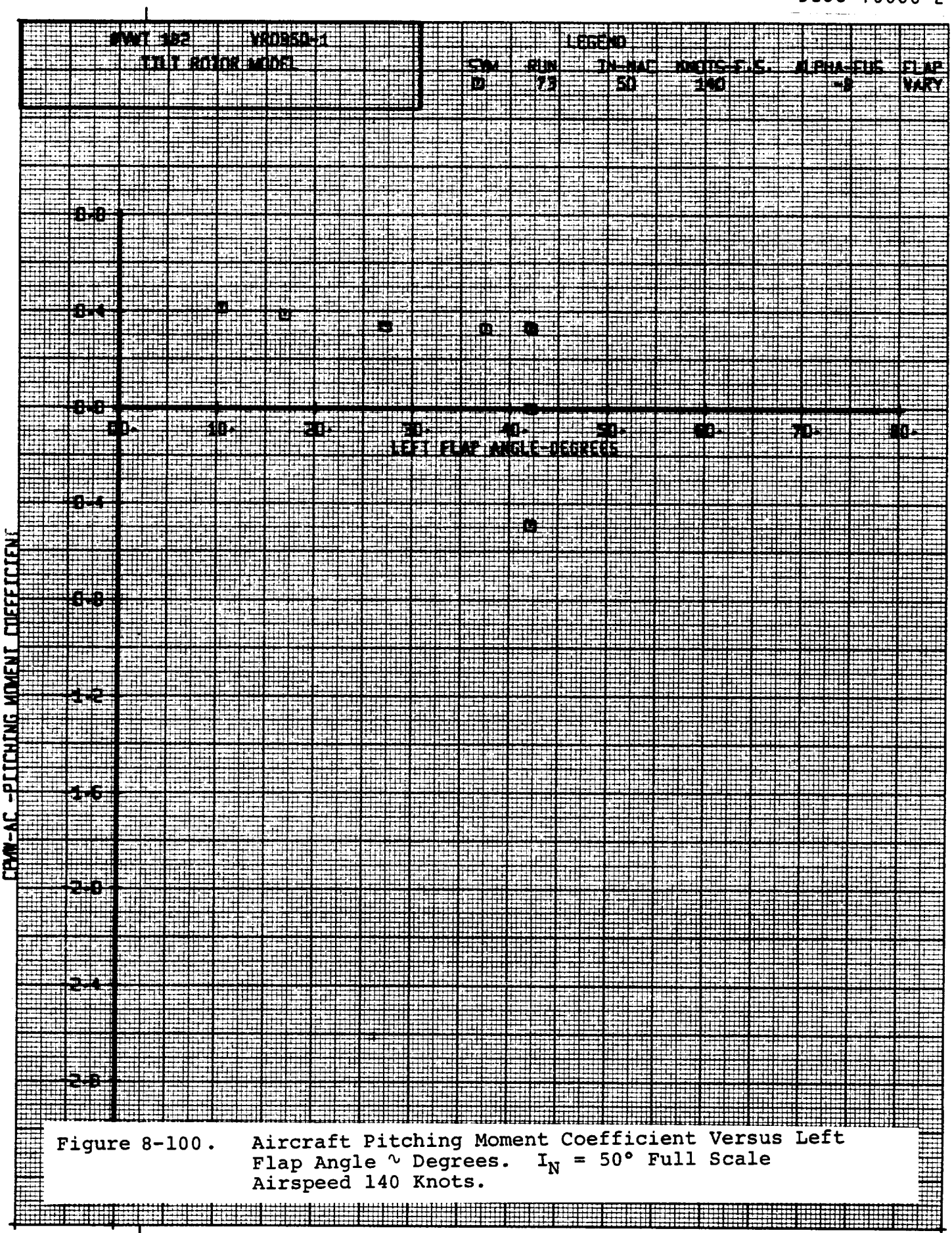


Figure 8-100. Aircraft Pitching Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

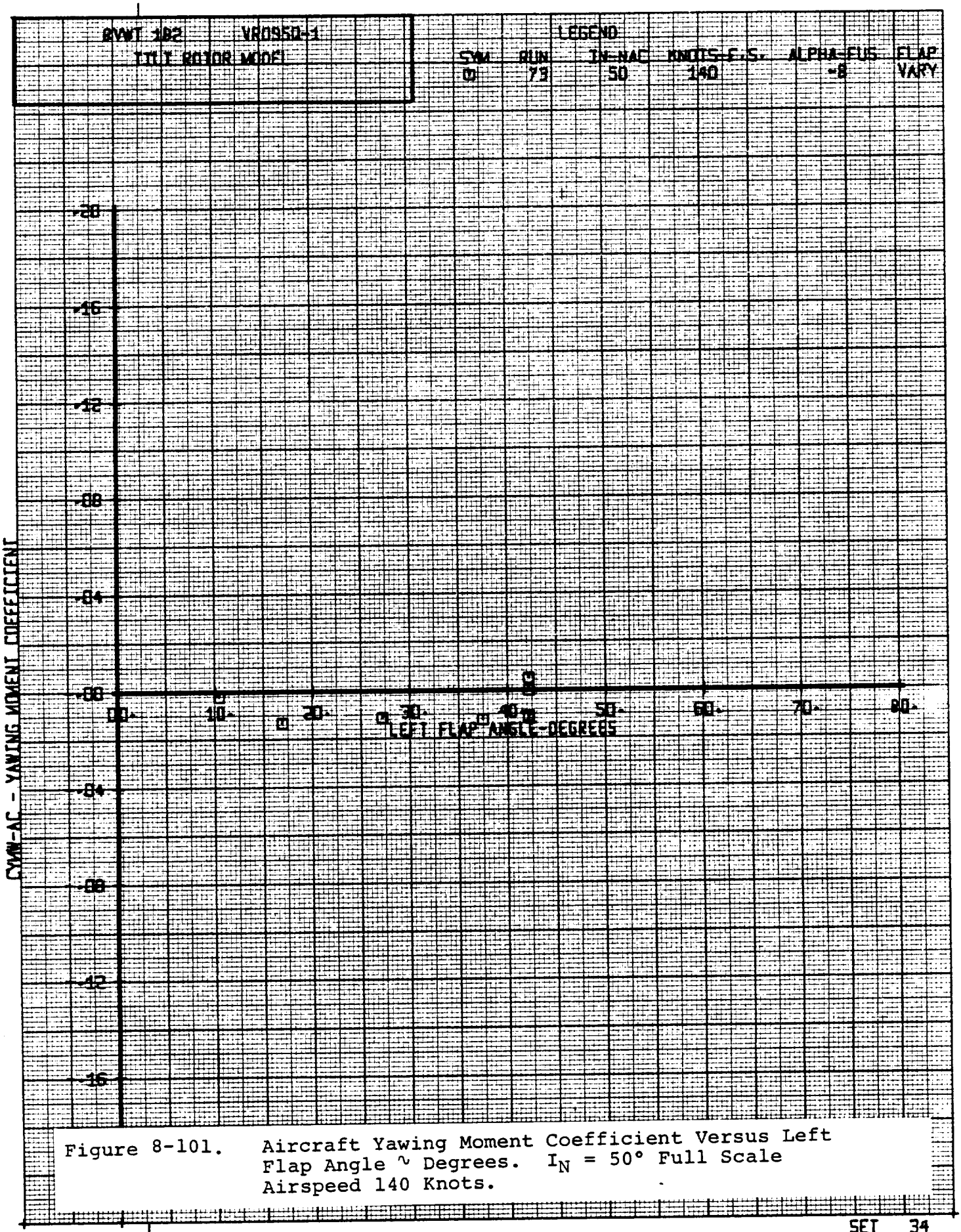


Figure 8-101. Aircraft Yawing Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

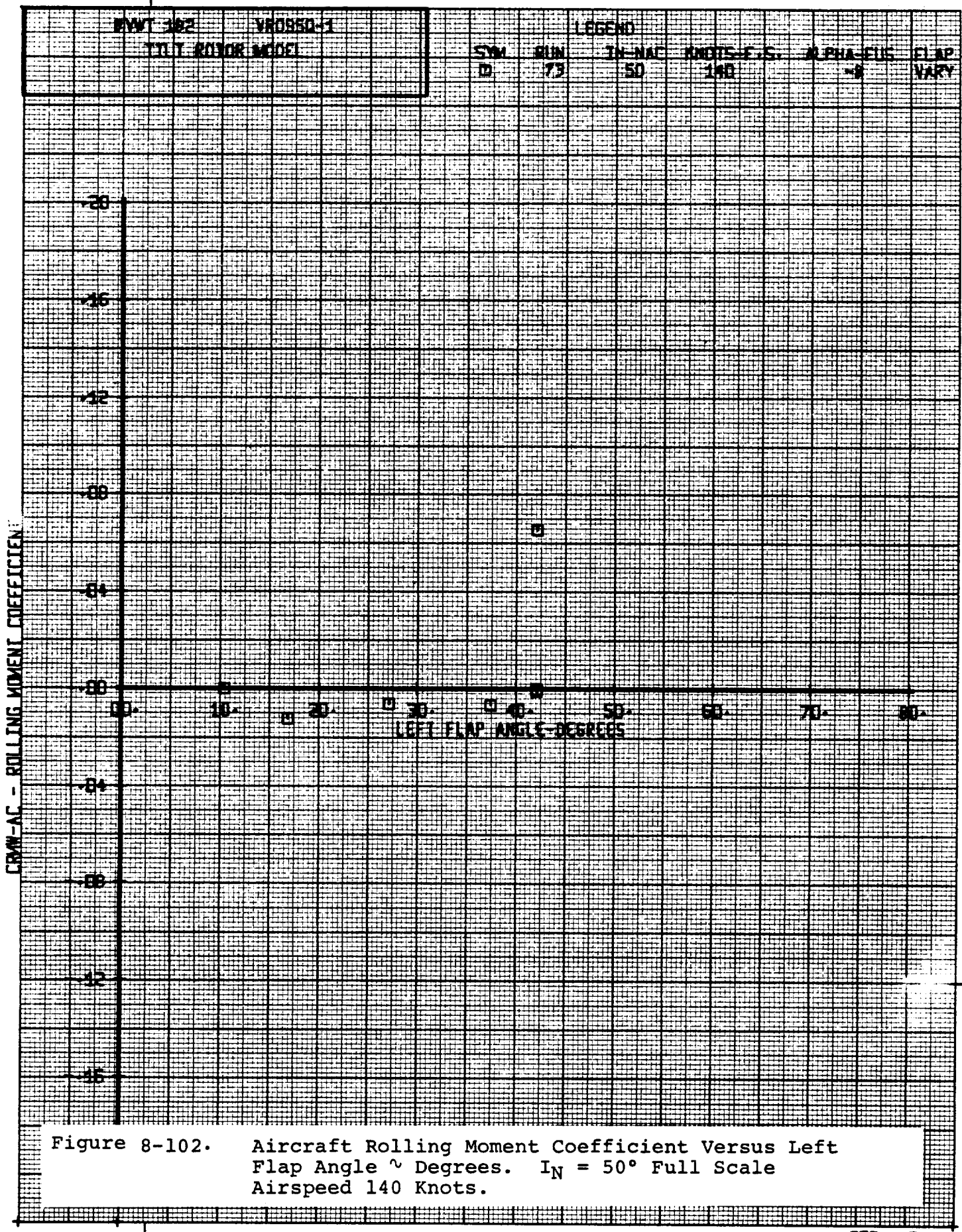


Figure 8-102. Aircraft Rolling Moment Coefficient Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

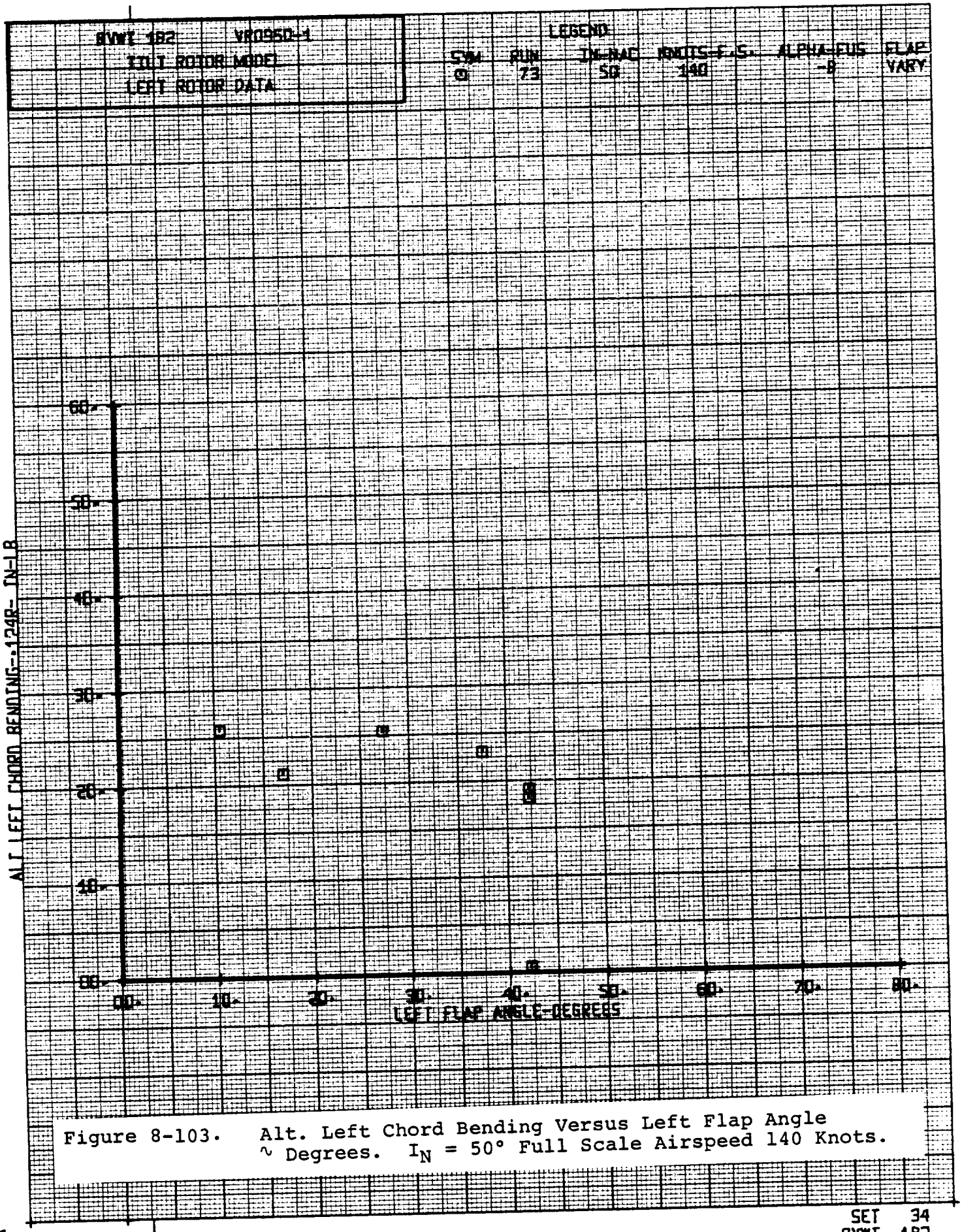


Figure 8-103. Alt. Left Chord Bending Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

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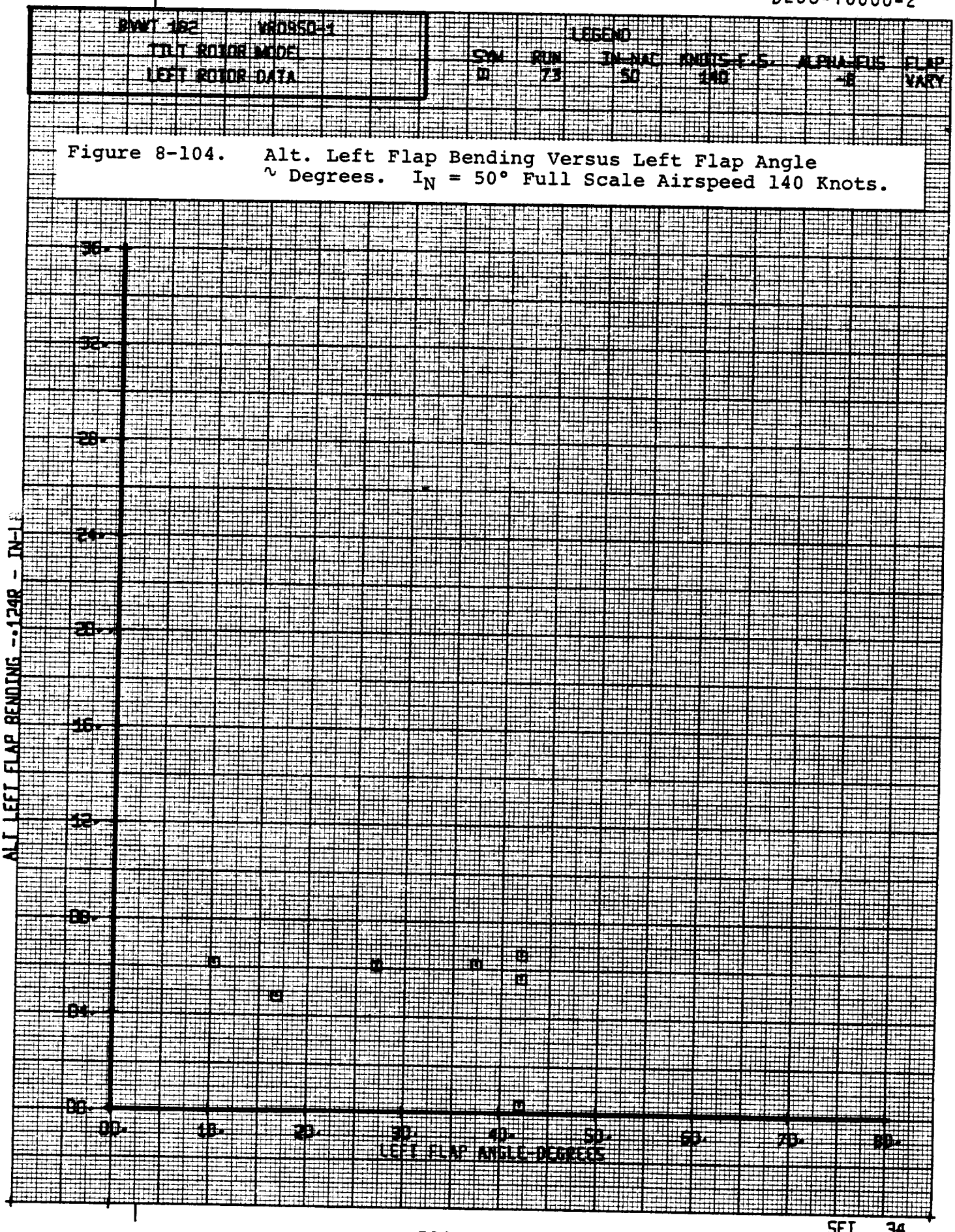


Figure 8-104. Alt. Left Flap Bending Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

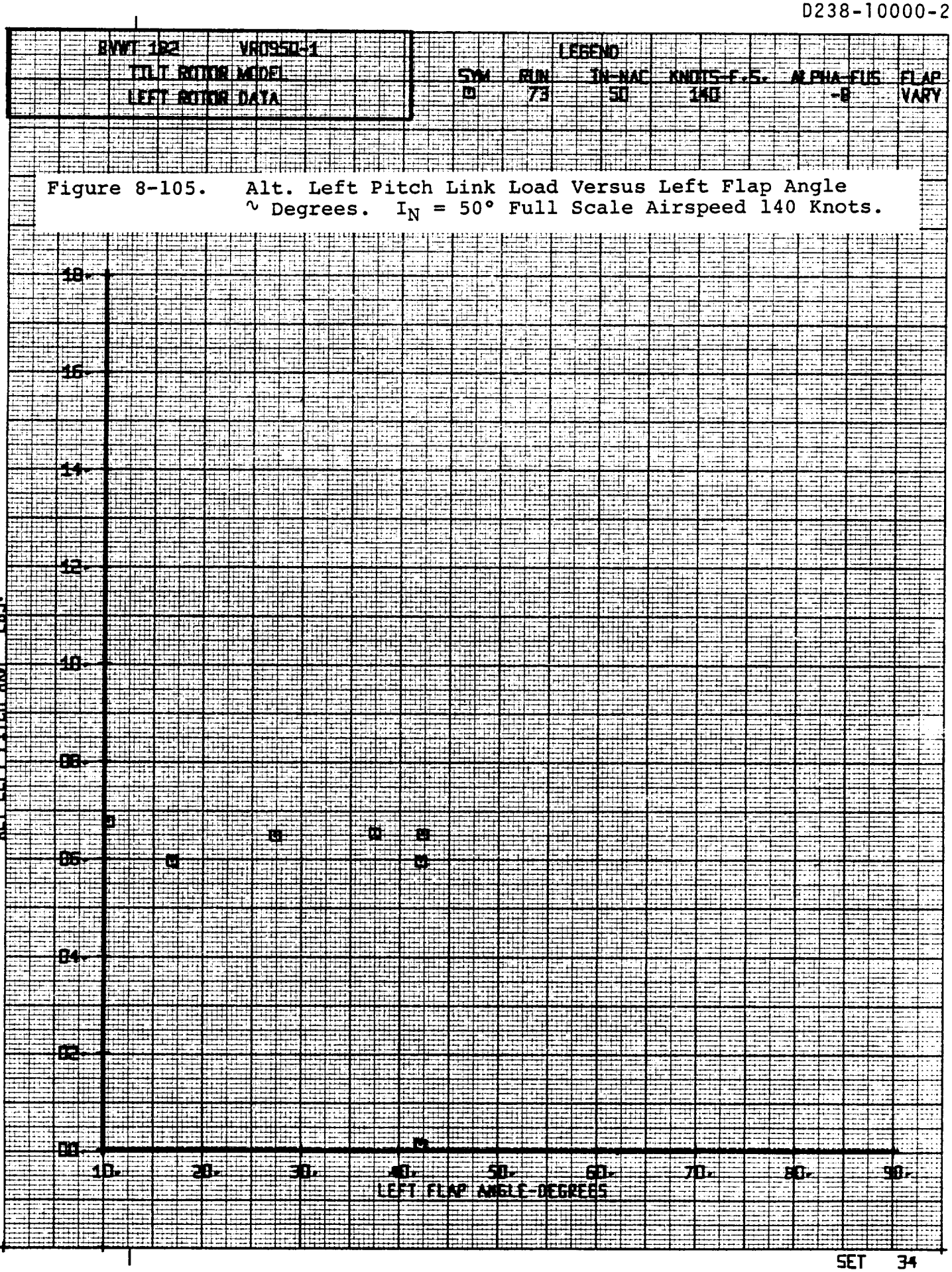


Figure 8-105. Alt. Left Pitch Link Load Versus Left Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

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SET 34
BVWT 182

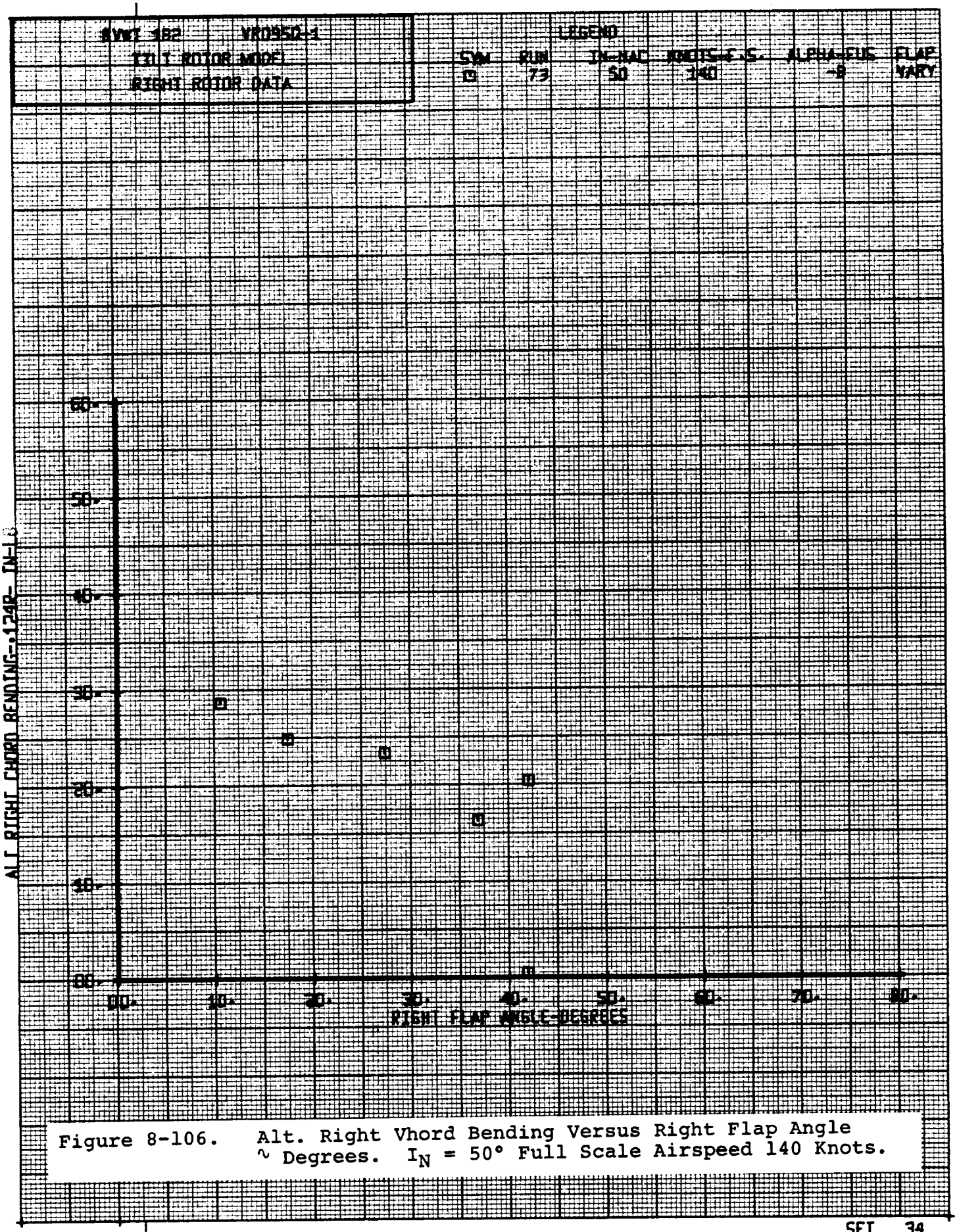


Figure 8-106. Alt. Right Vhord Bending Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

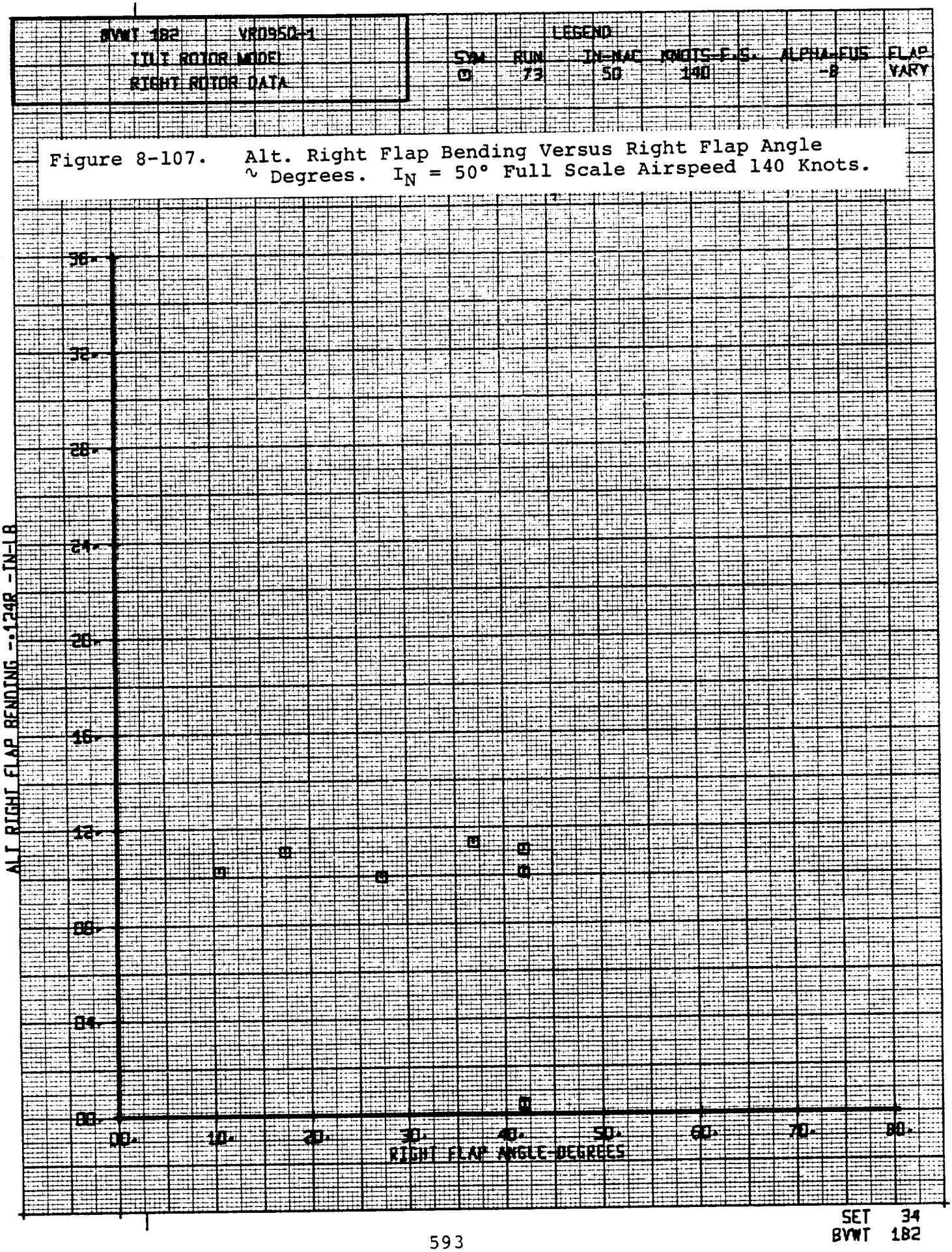


Figure 8-107. Alt. Right Flap Bending Versus Right Flap Angle ∿ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

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SET 34
BVWT 182

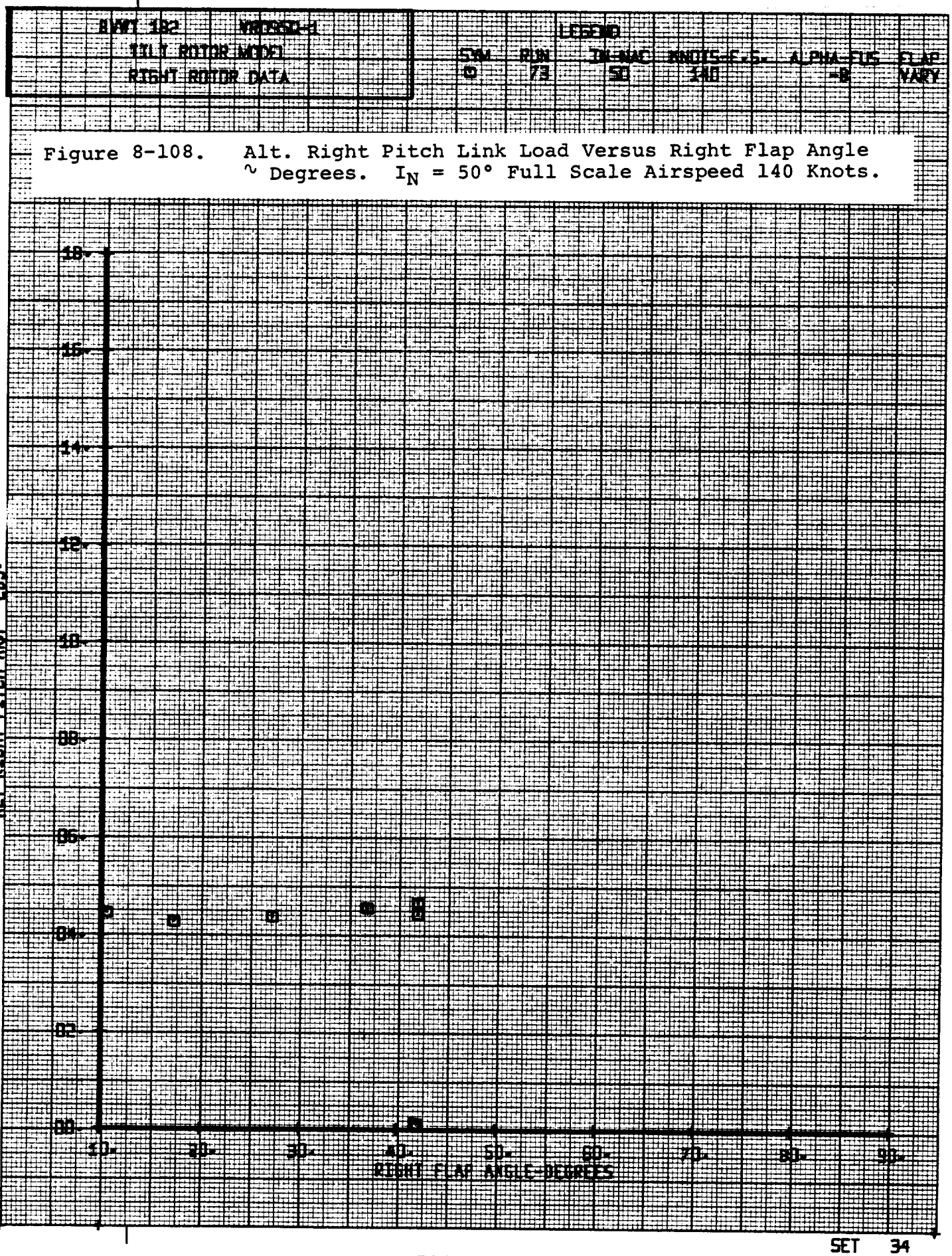


Figure 8-108. Alt. Right Pitch Link Load Versus Right Flap Angle ~ Degrees. I_N = 50° Full Scale Airspeed 140 Knots.

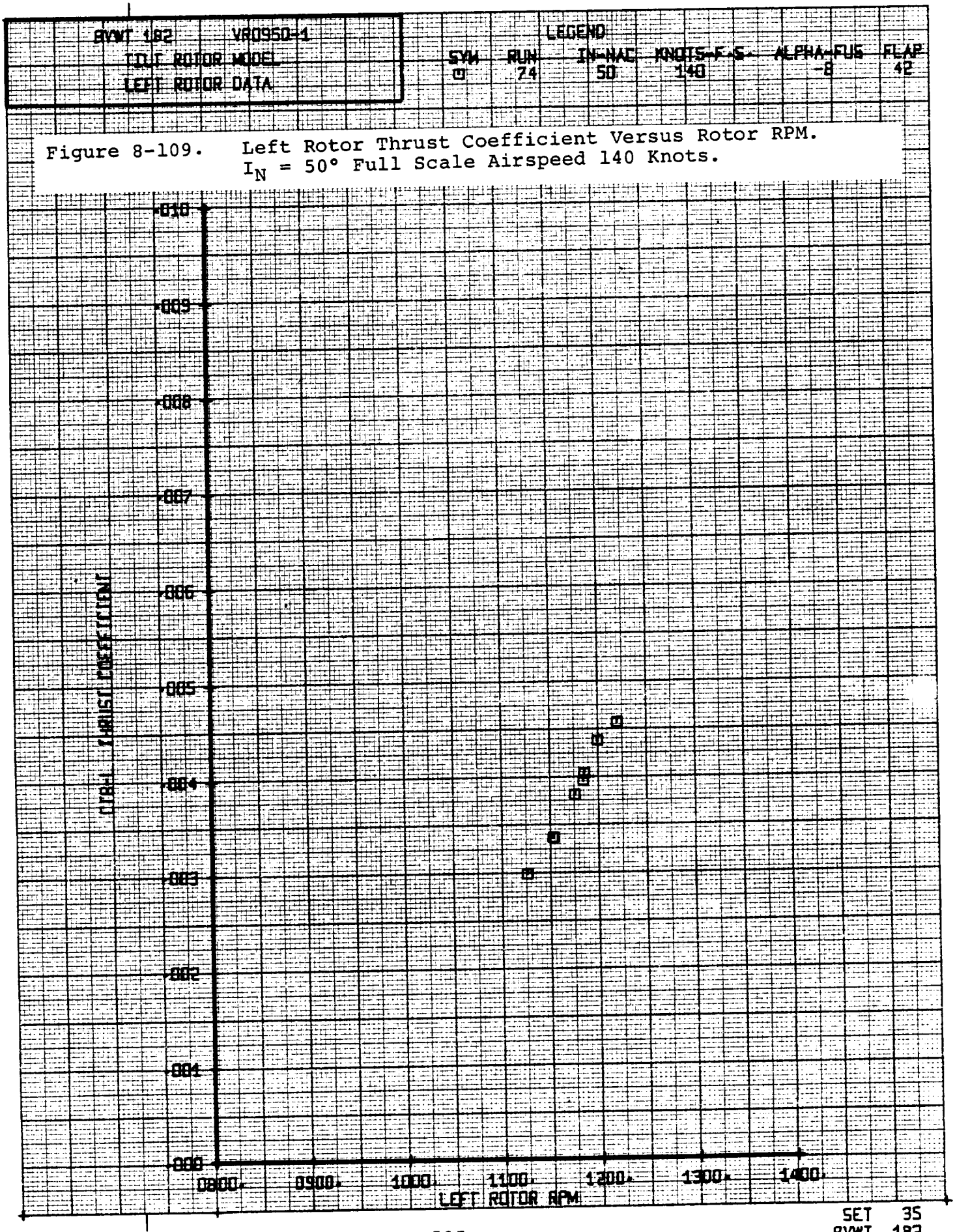


Figure 8-109. Left Rotor Thrust Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

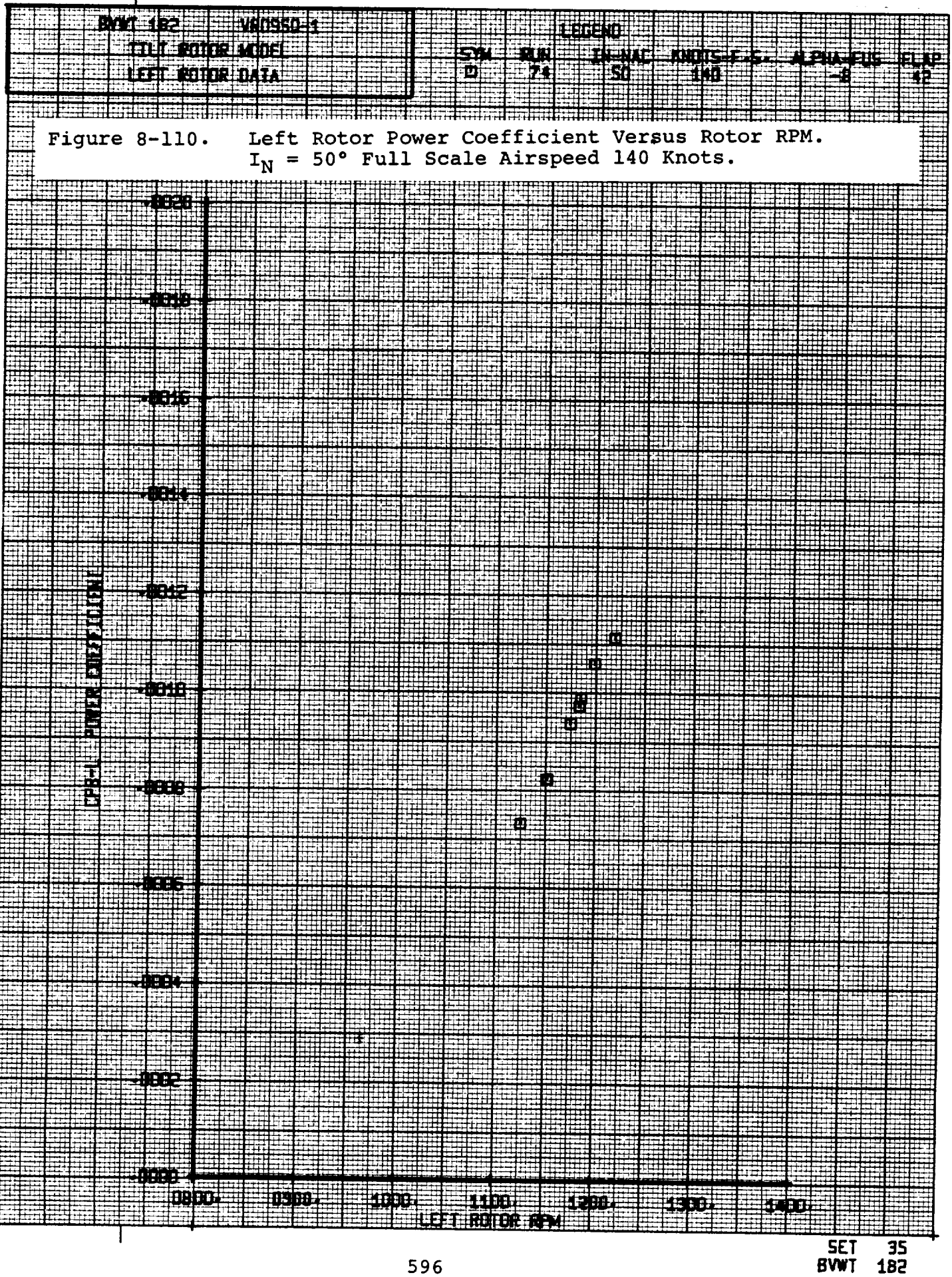


Figure 8-110. Left Rotor Power Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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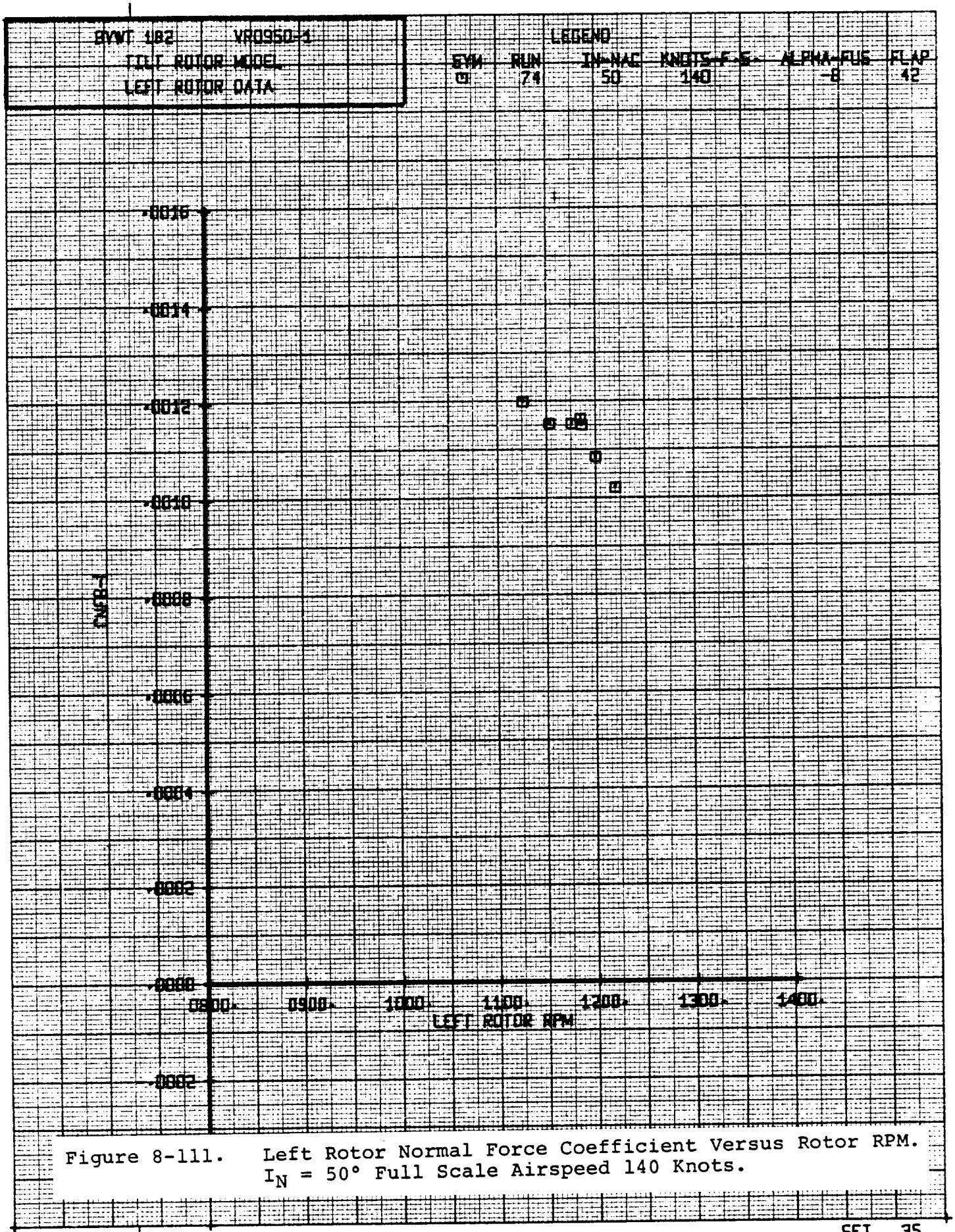


Figure 8-111. Left Rotor Normal Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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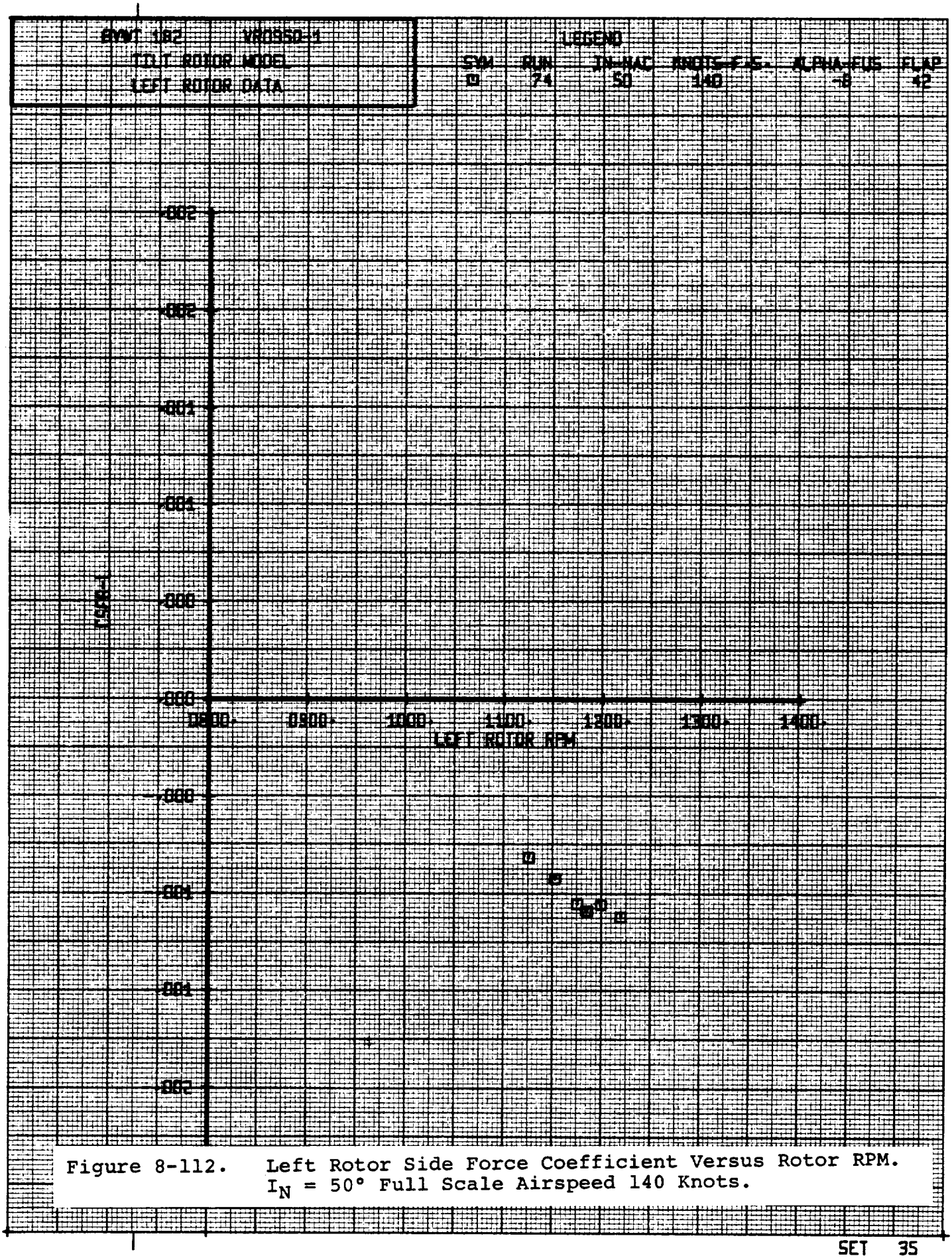


Figure 8-112. Left Rotor Side Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

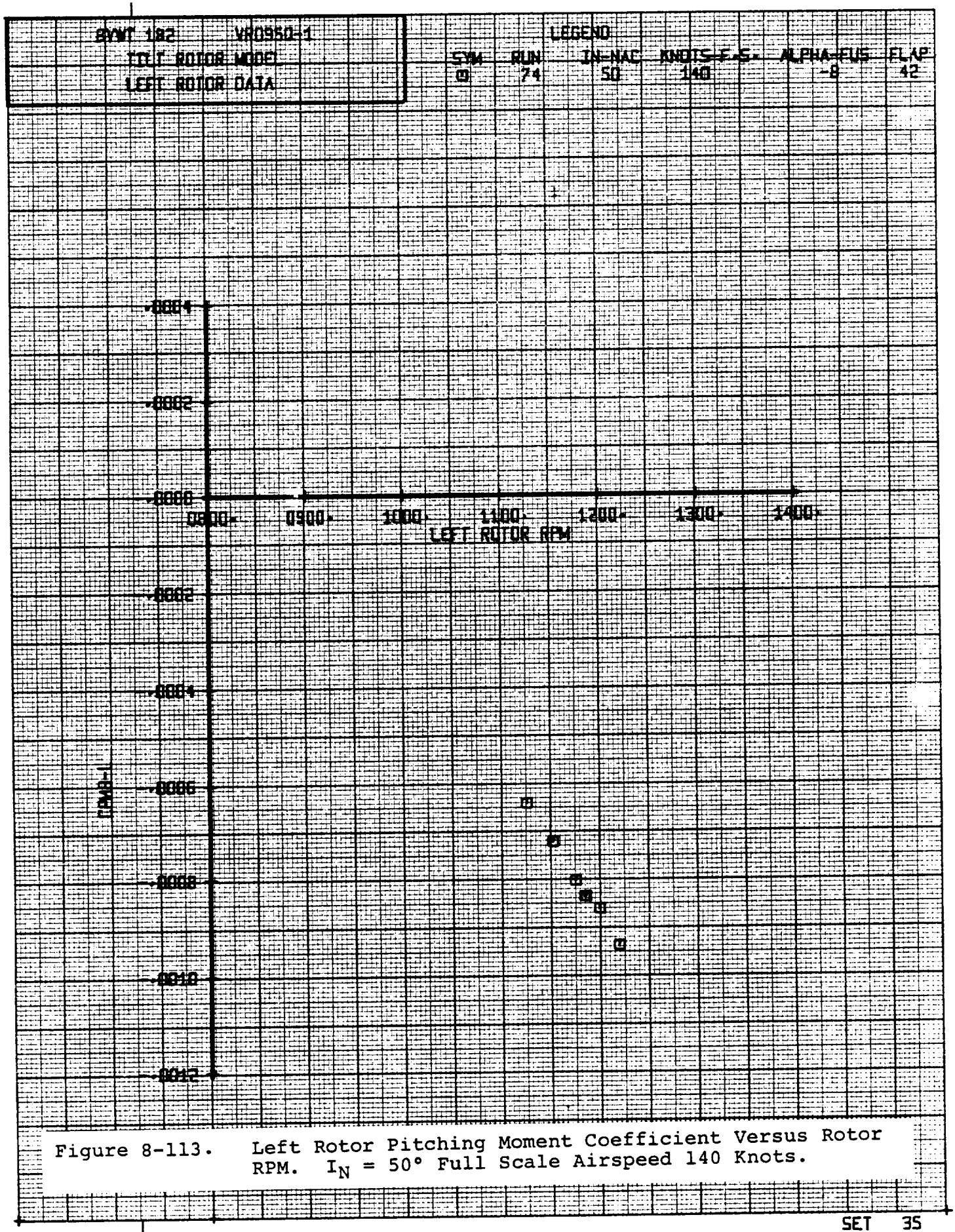


Figure 8-113. Left Rotor Pitching Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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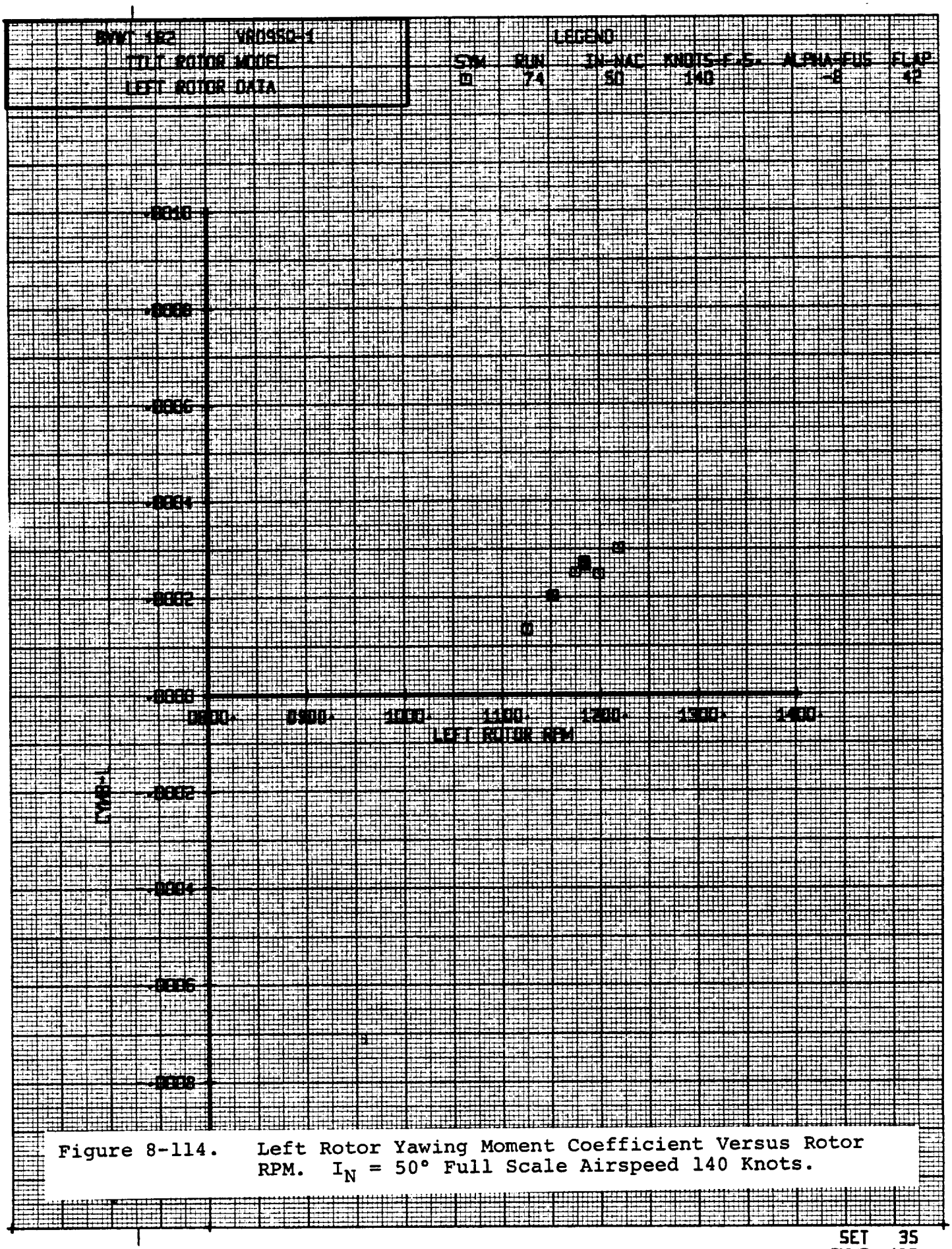


Figure 8-114. Left Rotor Yawing Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

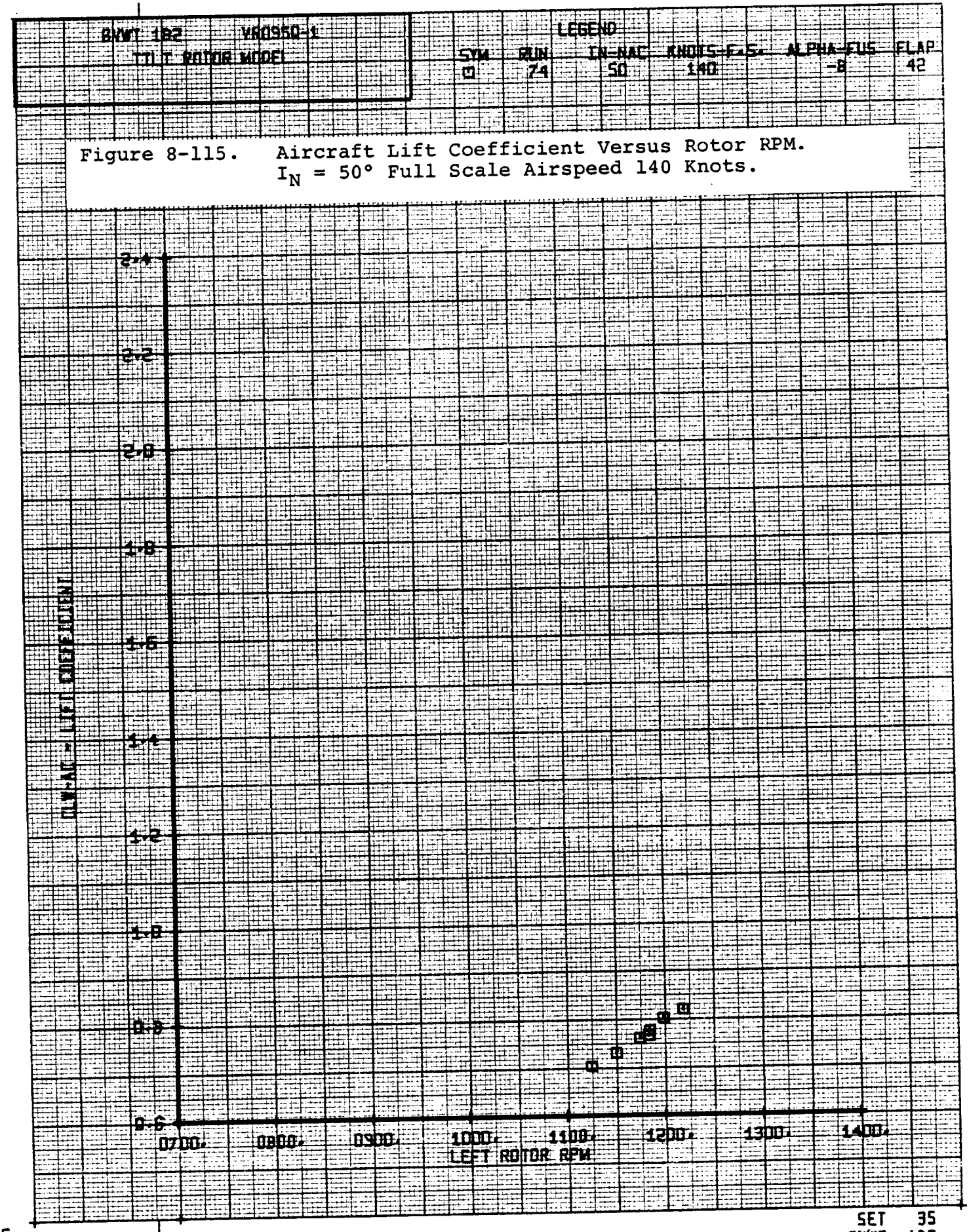


Figure 8-115. Aircraft Lift Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

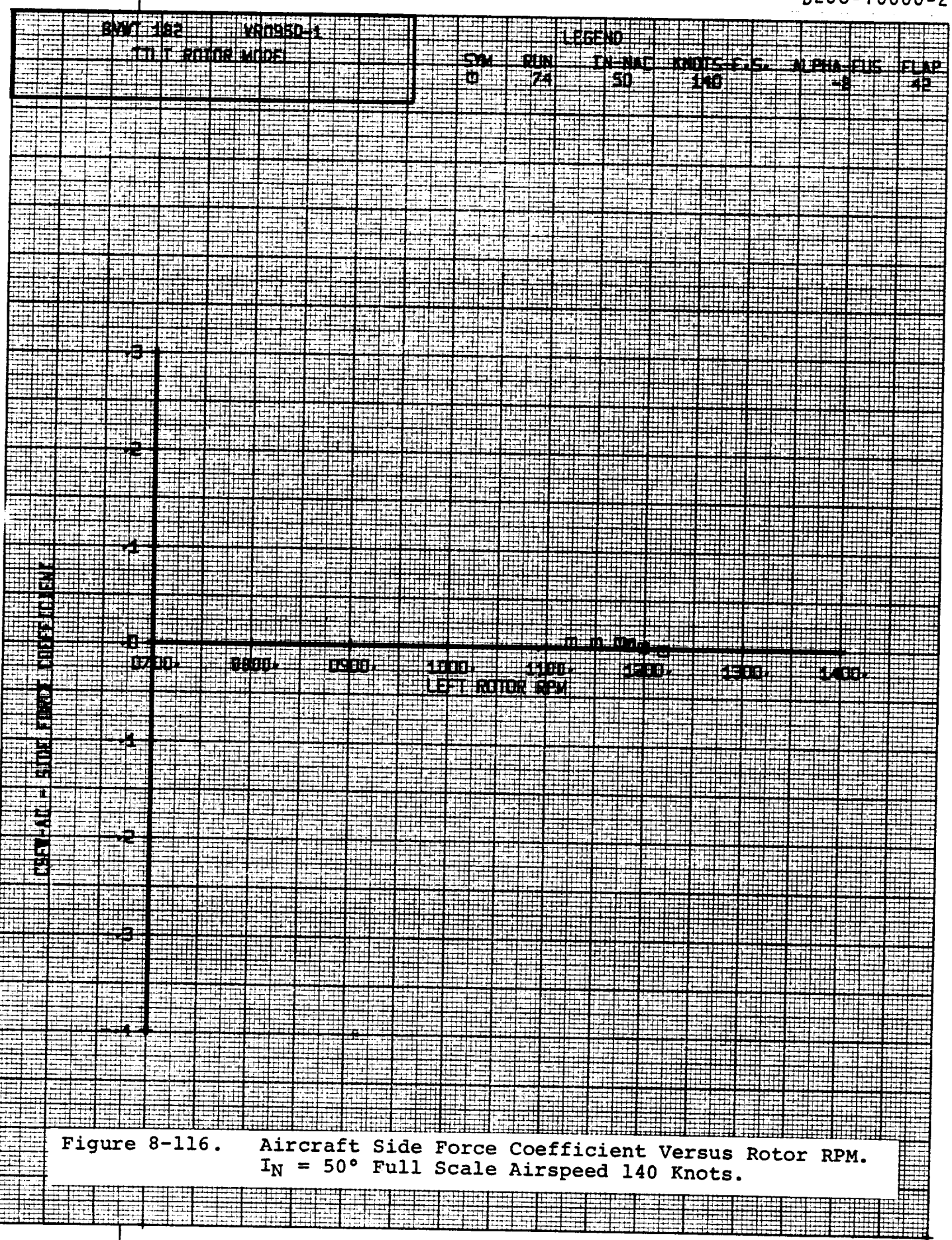


Figure 8-116. Aircraft Side Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

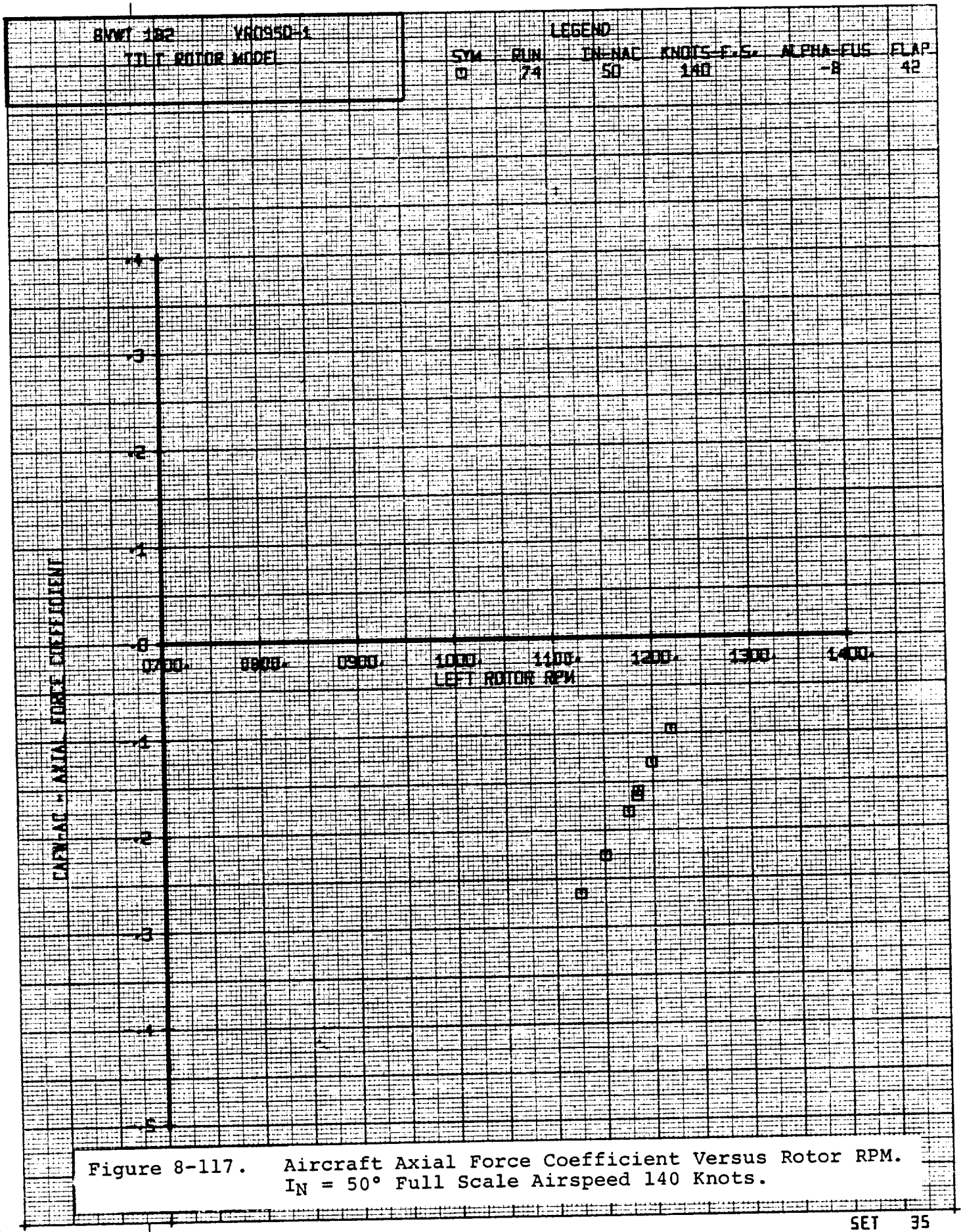


Figure 8-117. Aircraft Axial Force Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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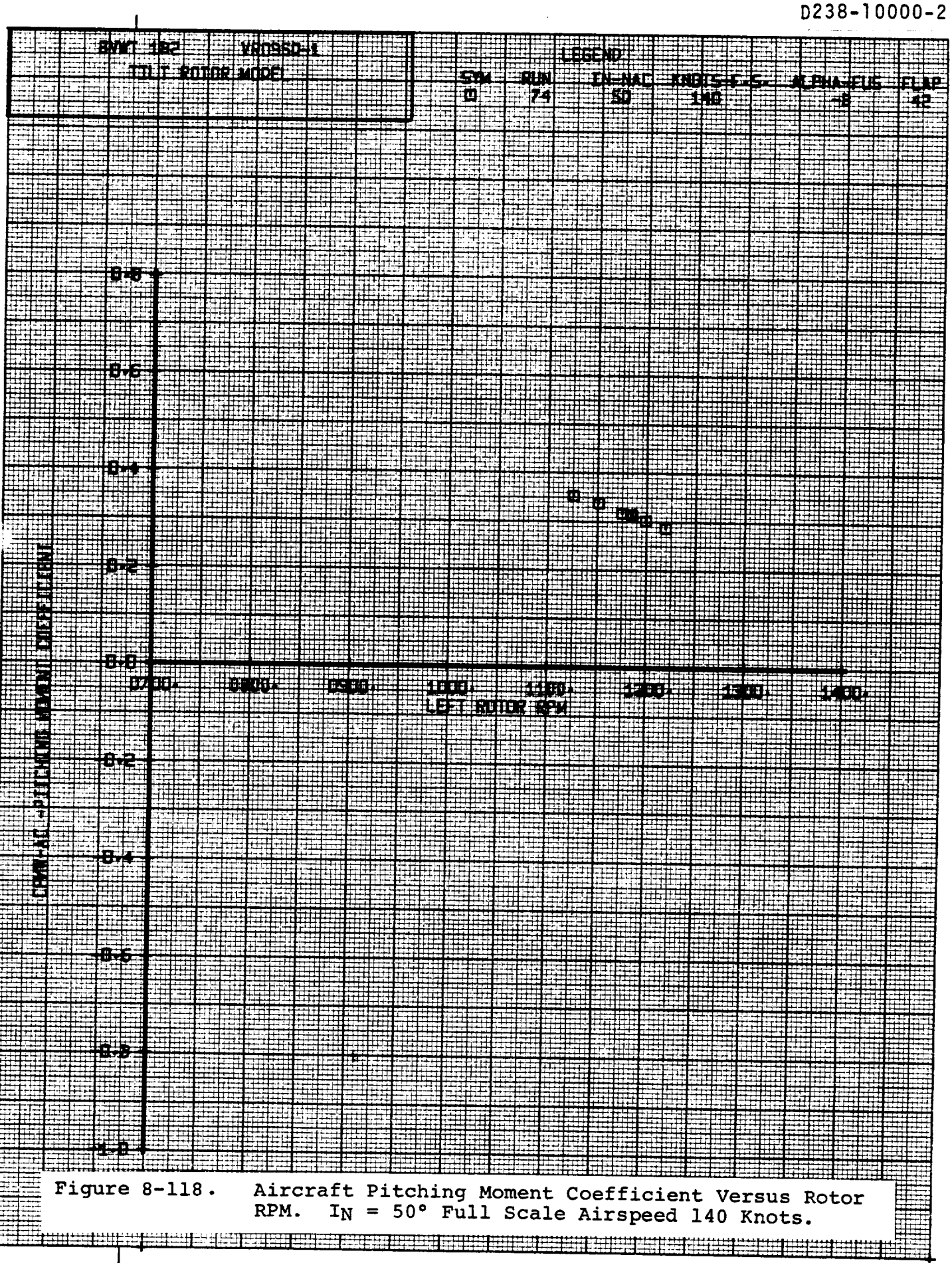


Figure 8-118. Aircraft Pitching Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

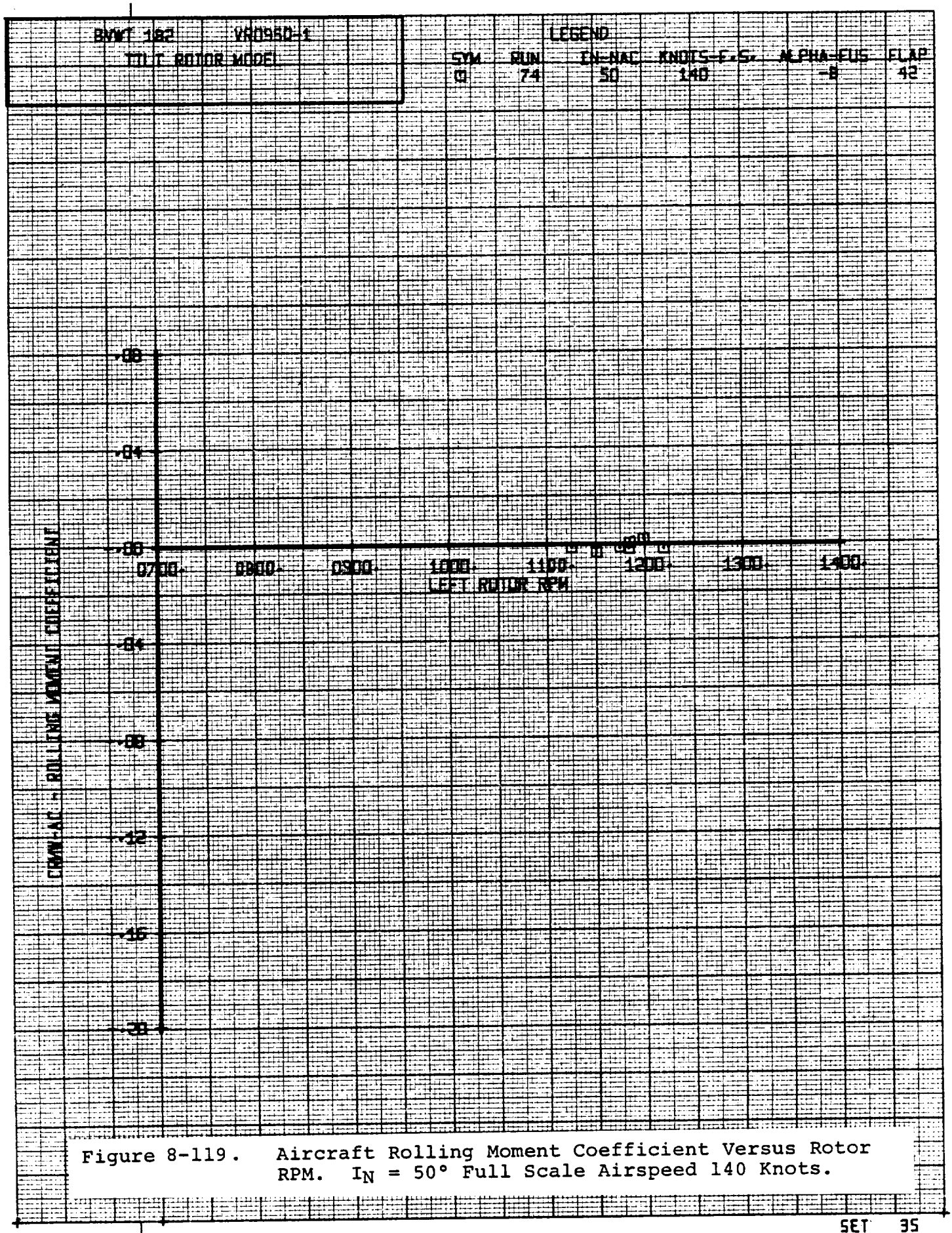


Figure 8-119. Aircraft Rolling Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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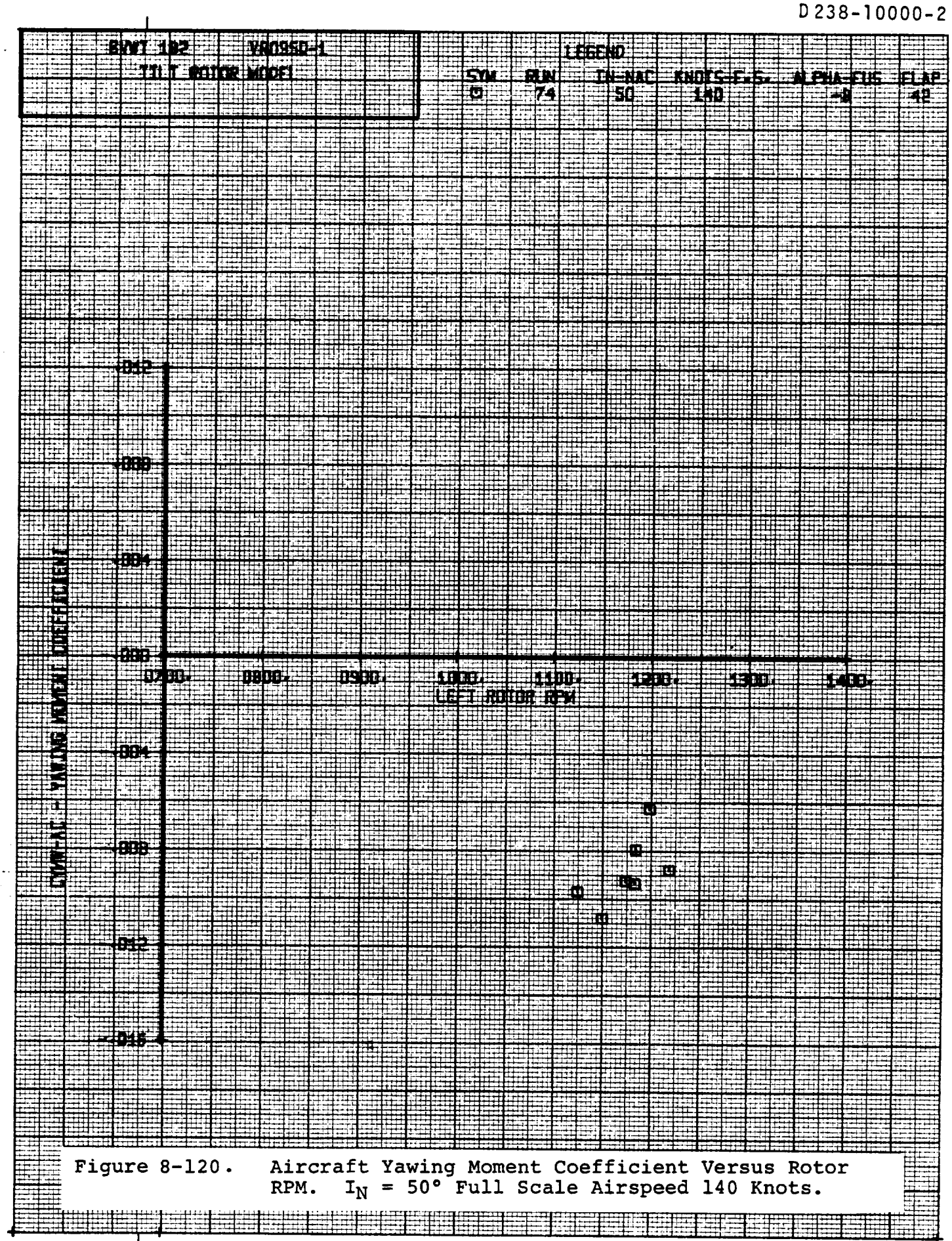


Figure 8-120. Aircraft Yawing Moment Coefficient Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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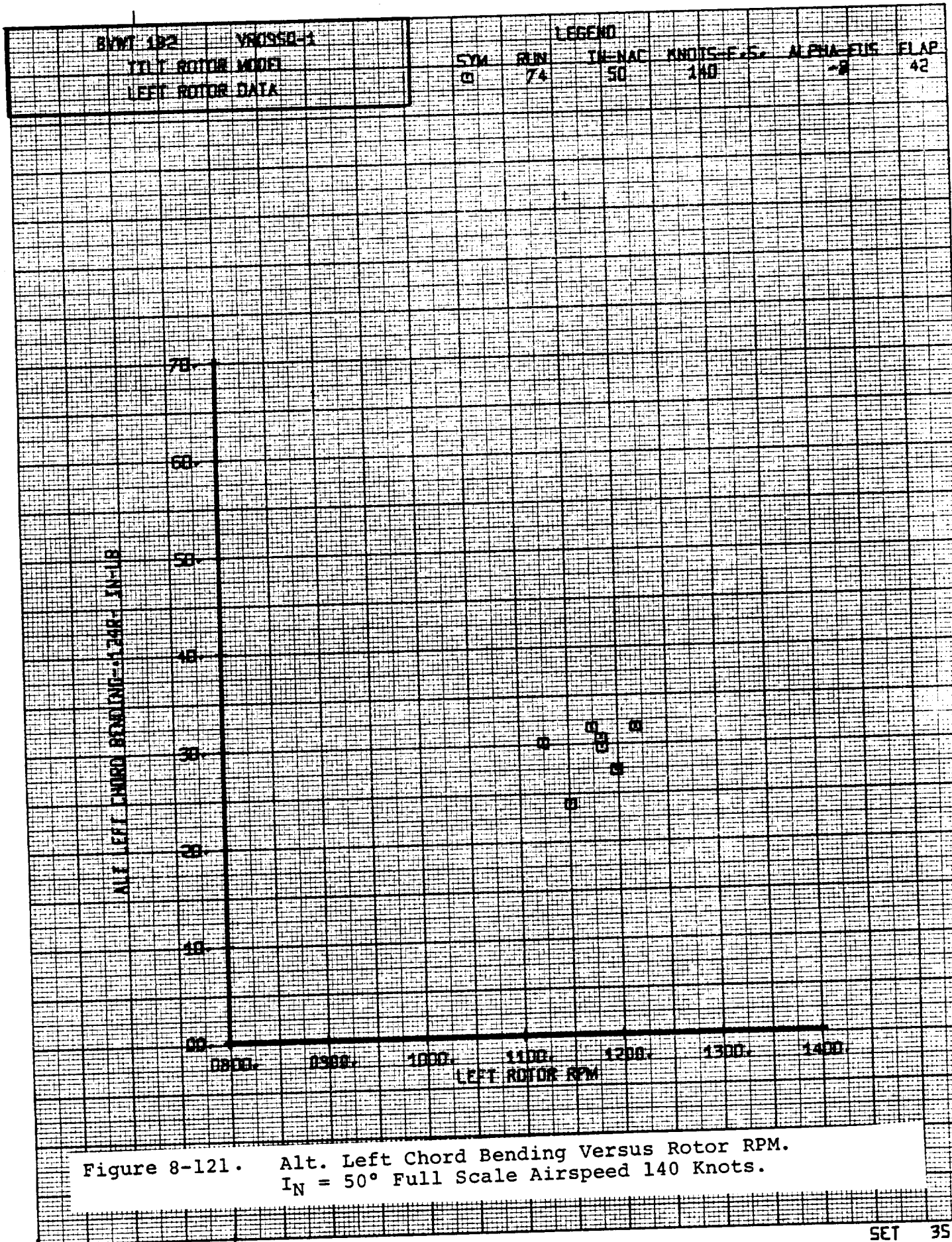


Figure 8-121. Alt. Left Chord Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

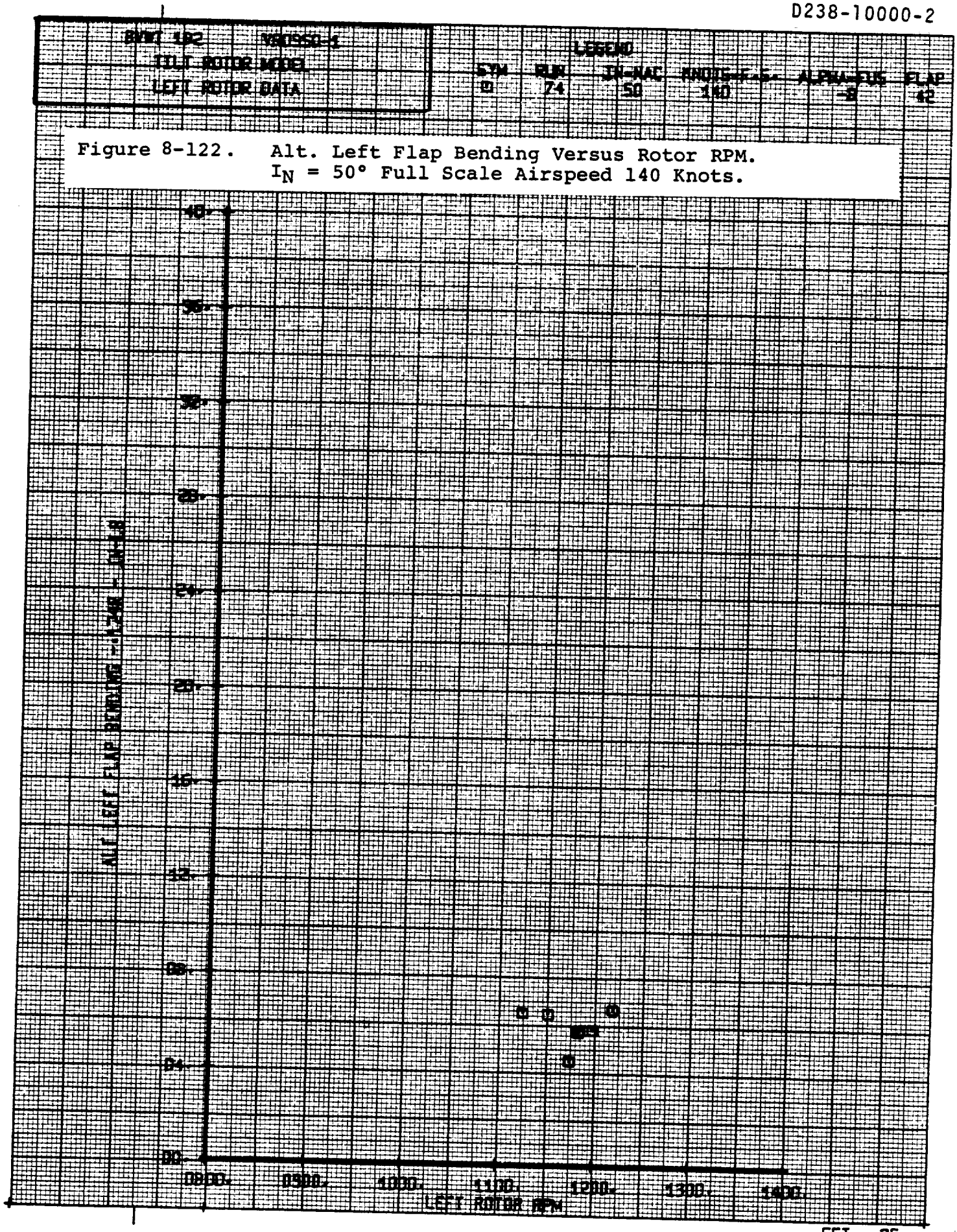


Figure 8-122. Alt. Left Flap Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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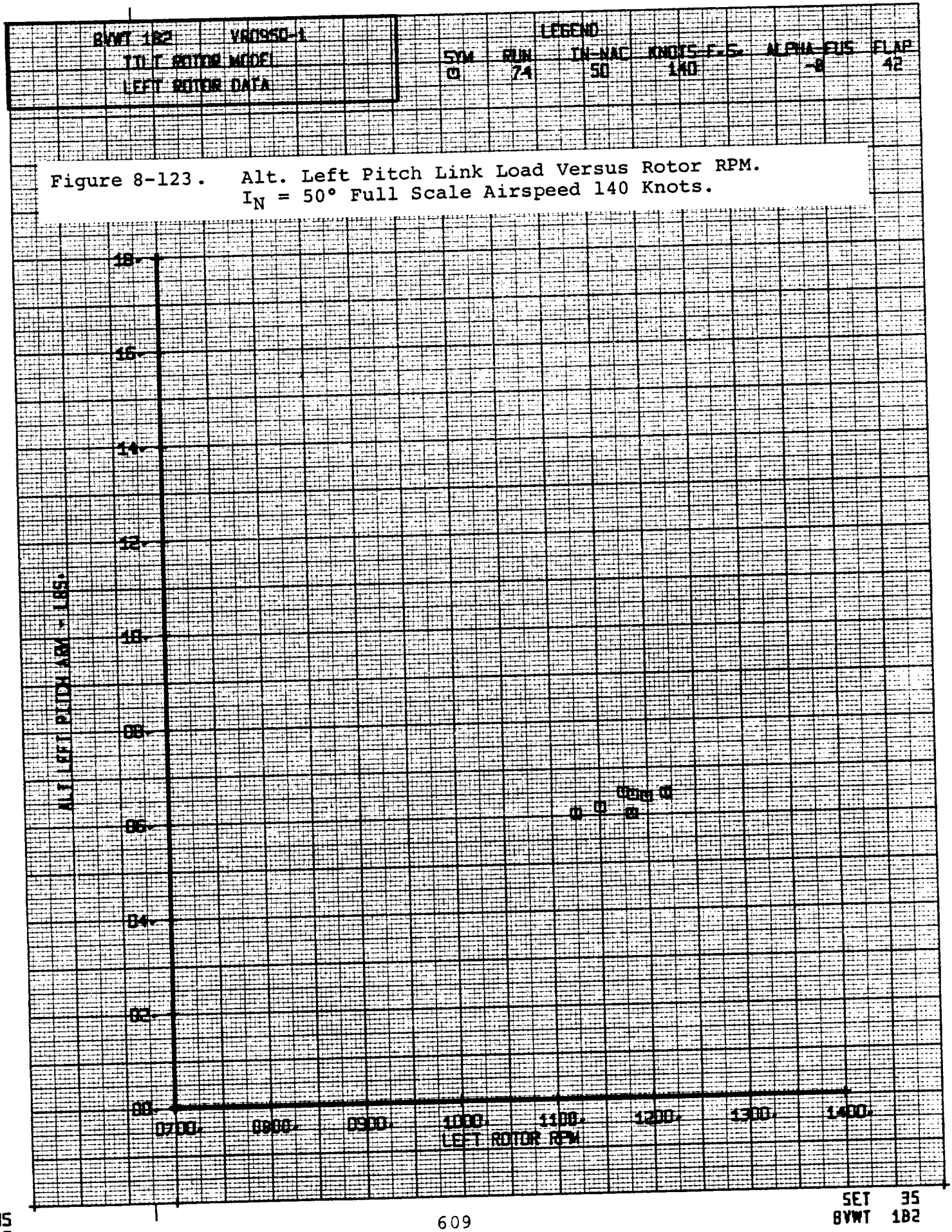


Figure 8-123. Alt. Left Pitch Link Load Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

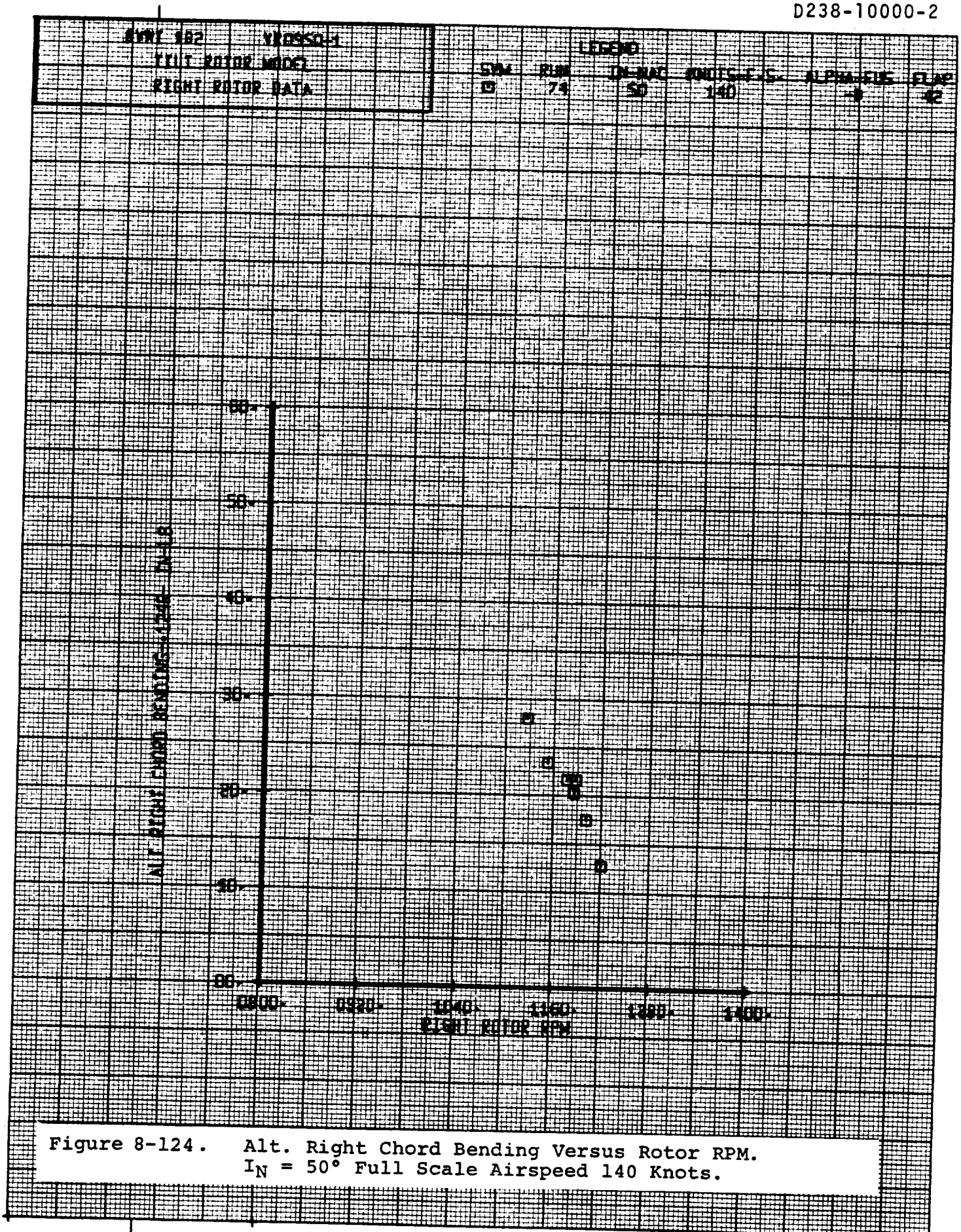


Figure 8-124. Alt. Right Chord Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

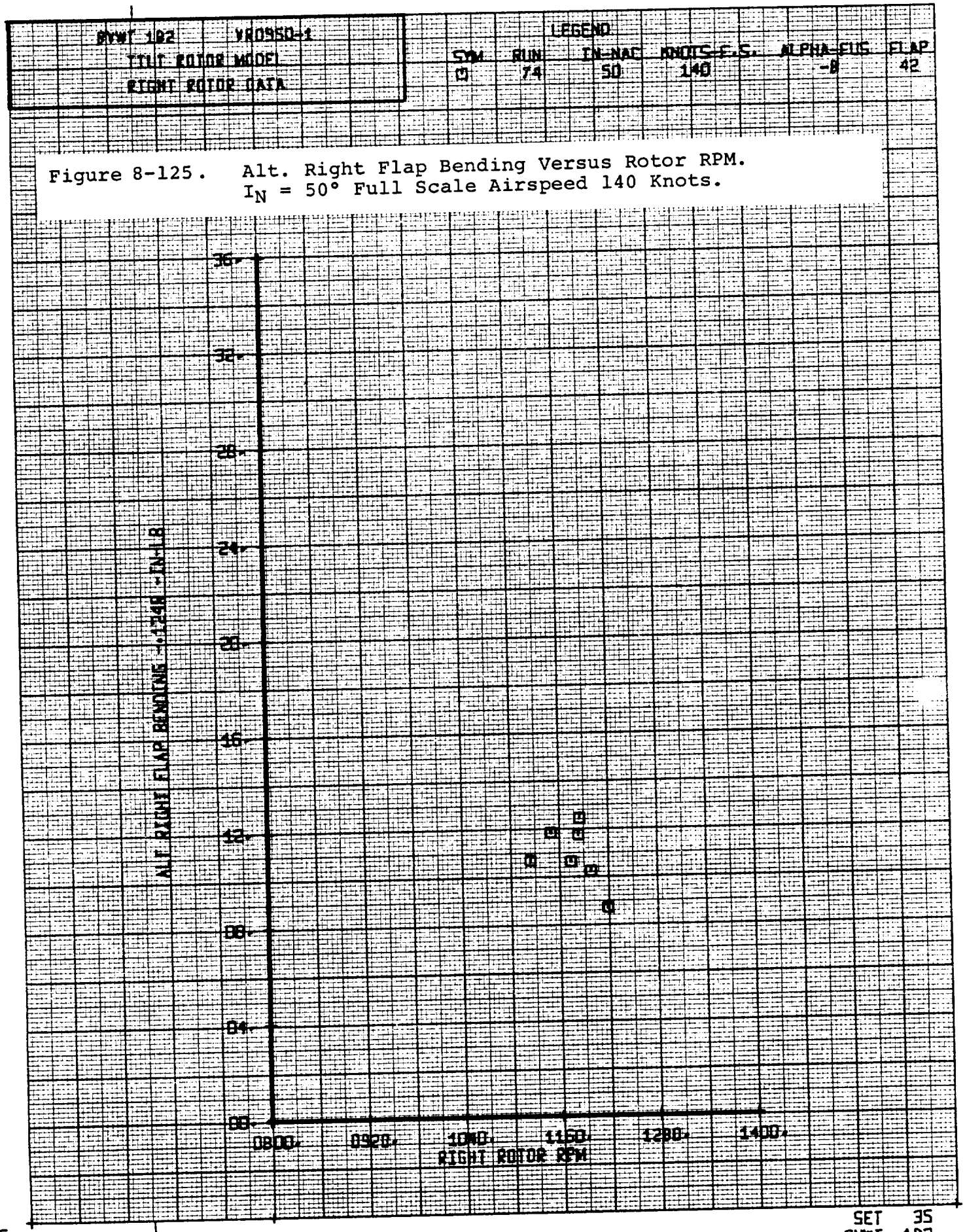


Figure 8-125. Alt. Right Flap Bending Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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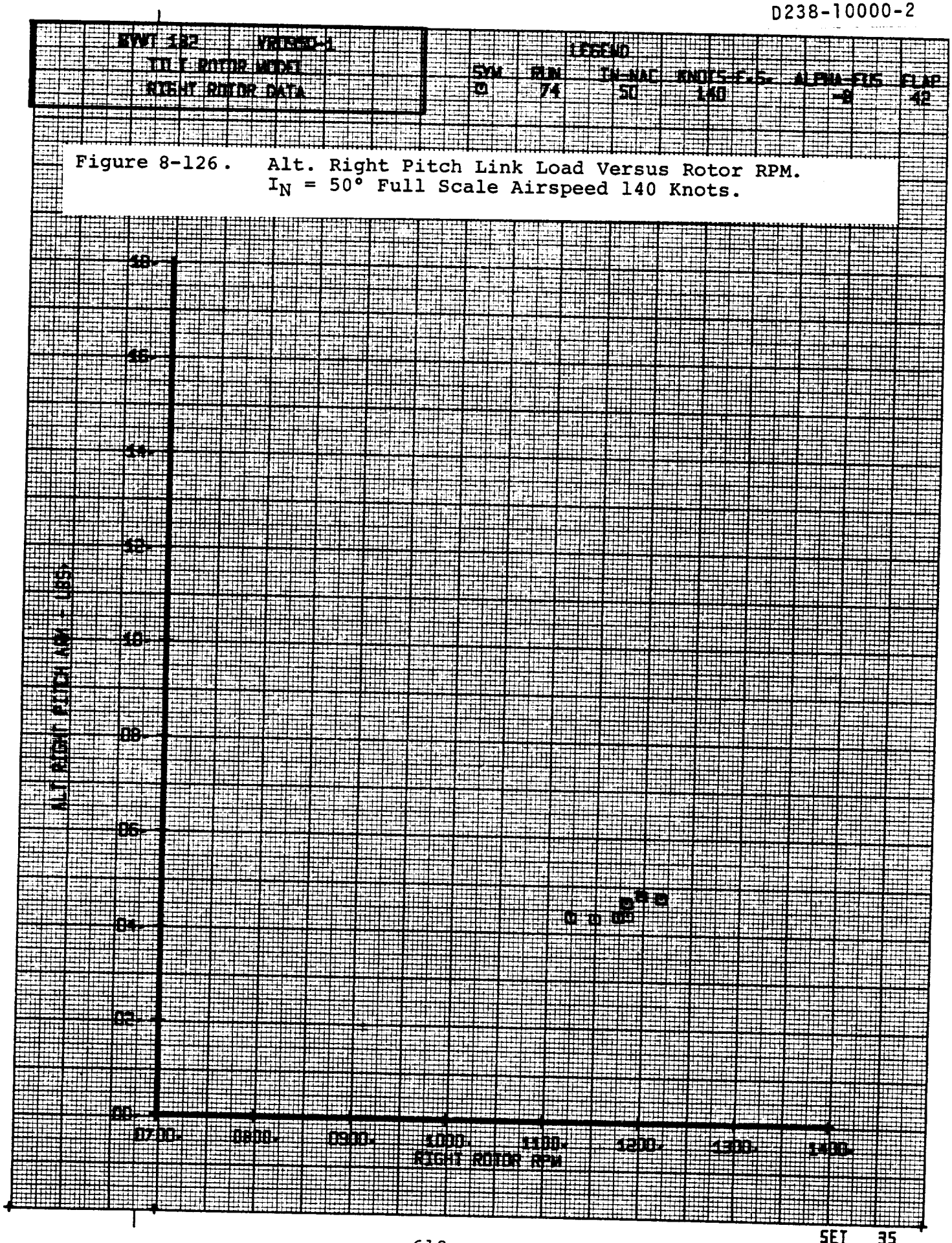


Figure 8-126. Alt. Right Pitch Link Load Versus Rotor RPM. I_N = 50° Full Scale Airspeed 140 Knots.

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